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*1. The Museum of Natural History, the University of Kansas. By E. R. Hall and Ann Murray. Pp. 1-16, illustrated. January 5, 1946.

*2. Handbook of Amphibians and Reptiles of Kansas. By Hobart M. Smith. Pp. 1-336, 233 figures in text. September 12, 1950.

3. In Memoriam, Charles Dean Bunker, 1870-1948. By E. Raymond Hall. Pp. 1-11, 1 figure in text. December 15, 1951.

*4. The University of Kansas, Natural History Reservation. By Henry S. Fitch. Pp. 1-38, 4 plates, 3 figures in text. February 20, 1952.

5. Prairie Chickens of Kansas. By Maurice F. Baker. Pp. 1-68, 4 plates, 15 figures in text. March 10, 1953.

6. The Barren Ground Caribou of Keewatin. By Francis Harper. Pp. 1-163, 28 figures. October 21, 1955. Copies, paper bound, $1.50 postpaid from the Arctic Institute of North America, 1530 P Street NW, Washington 5, D. C.

7. Handbook of Mammals of Kansas. By E. Raymond Hall. Pp. 1-303, illustrated. December 13, 1955. Paper bound, $1.50 postpaid (cloth $4.00).

8. Mammals of Northern Alaska, on the Arctic Slope. By James W. Bee and E. Raymond Hall. Pp. 1-309, Frontispiece colored, 4 plates, 127 figures in text. March 10, 1956. Paper bound $1.00 postpaid.

9. Handbook of Amphibians and Reptiles of Kansas. 2nd [revised] edition. By Hobart M. Smith. Pp. 1-356, 253 figures in text. April 20, 1956. Paper bound $1.50 postpaid (cloth $4.00).

*10. The Raccoon in Kansas. By Howard J. Stains. Pp. 1-76, 4 plates, 14 figures in text. July 6, 1956.

11. The Tree Squirrels of Kansas. By Robert L. Packard. Pp. 1-67, 2 plates, 10 figures in text. August 20, 1956.

12. The Mammals of Keewatin. By Francis Harper. Pp. 1-94, 6 plates, 8 figures in text, 1 map. October 26, 1956. Copies, paper bound, 75 cents postpaid from the Arctic Institute of North America, 1530 P Street NW, Washington 5, D. C.

13. Museum of Natural History . . . University of Kansas. By Roy R. Moore and E. R. Hall. Pp. 1-8, illustrated. June 1, 1957.

14. Vernacular Names for North American Mammals North of Mexico. By E. Raymond Hall, Sydney Anderson, J. Knox Jones, Jr., and Robert L. Packard. Pp. 1-16. June 19, 1957.

15. The Ecology of Bobwhites in South-central Kansas. By Thane S. Robinson. Pp. 1-84, 2 plates, 11 figures in text. September 6, 1957.

16. Natural History of the Prairie Dog in Kansas. By Ronald E. Smith. Pp. 1-36, 4 plates, 9 figures in text. June 17, 1958.

17. Birds of the Ungava Peninsula. By Francis Harper. Pp. 1-171, 6 plates, 26 maps. October 15, 1958. Paper bound, $2.00 postpaid from the Arctic Institute of North America, 1530 P Street NW, Washington 5, D. C.

18. Furbearers in Kansas: A Guide to Trapping. By Howard J. Stains and Rollin H. Baker. Pp. 1-100, illustrated. November 19, 1958. Paper bound, 50 cents postpaid.

19. Museum of Natural History . . . University of Kansas. By Roy R. Moore and E. R. Hall. Pp. 1-8, illustrated. May 29, 1959.

20. Handbook of Gastropods in Kansas. By A. Byron Leonard. Pp. 1-224, 11 plates, 87 figures in text. November 2, 1959. Paper bound $1.00 (cloth $2.00).

21. Management of Channel Catfish in Kansas. By Jackson Davis. Pp. 1-56, 8 figures in text. November 2, 1959.

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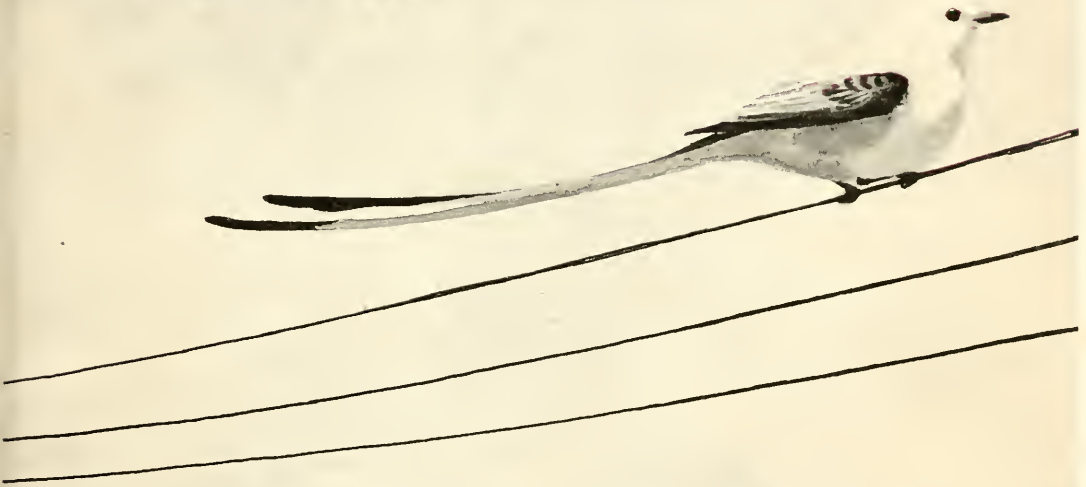

Richard F. Johnston

Museum of Natural History
The University of Kansas

Directory to the Bird-life of Kansas

By Richard F. Johnston

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UNIVERSITY OF KANSAS

MUSEUM OF NATURAL HISTORY

EDITOR: E. RAYMOND HALL

Miscellaneous Publication No. 23, pp. 1-69, 1 figure
Published August 31, 1960

Lawrence, Kansas

The cover depicts a male scissor-tailed flycatcher along a county road a few miles east of Meade County State Park, Meade County, Kansas.

PRINTED IN
THE STATE PRINTING PLANT
TOPEKA, KANSAS
1960

23-4053

Directory to the Bird-life of Kansas

BY RICHARD F. JOHNSTON

This directory summarizes several kinds of information concerning birds of Kansas, and of mid-continental North America, and has two functions. First, it tells something about the natural history of the 379 species of birds of Kansas. Second, it can help students of some kinds of birds, or of some aspect of natural history, to find out how much is known about their problem, and can show to what extent, and frequently in what direction, further work will be useful. For instance, it can be deduced that studies on the population ecology of the Eastern Kingbird and on the behavior of the Mourning Dove, both abundant birds in our area, are needed. Also, it will be seen that we do not know exactly how many kinds of birds breed in Kansas, a matter of immediate concern in the following account.

The Museum of Natural History at The University of Kansas solicits selected specimens and information that contribute to our knowledge of birds in Kansas. Donors of such material will join an already large group of persons who have contributed information, specimens, and time toward the preparation of this Directory. Chief among these is Dr. Harrison B. Tordoff, around whose Check-list of the birds of Kansas (1956) the present Directory has been elaborated; he generously made available for use in the Directory notes and comments that he had intended to use in bringing his Check-list up to date. Prof. E. Raymond Hall, Dr. John William Hardy, Mrs. Lorelei Johnston, Dr. Robert M. Mengel and Mr. Max C. Thompson helped to improve a late version of the manuscript. The names of the many other persons who have helped, primarily by providing records of nesting activities, appear in the paragraph below.

Galen Abbot, Ruth Abbot, Ted F. Andrews, Jon C. Barlow, Amelia J. Betts, Laurence C. Binford, Bessie Boso, William J. Brecheisen, L. B. Carson, Mrs. Eunice Dingus, C. S. Edwards, Abbot S. Gaunt, Sue Griffith, Mary F. Hall, Katherine Kelley, John A. Knouse, Eugene Lewis, Nathan H. McDonald, Marno McKaughan, Merrill McHenry, Mary Louise Myers, Kathryn Nelson, T. W. Nelson, Phillip W. Ogilvie, Dwight Platt, William Reynolds, Frank Robl, S. D. Roth, Jr., Richard H. Schmidt, Marvin D. Schwil-

ling, T. M. Sperry, Steve Stephens, Max C. Thompson, Emil K. Urban, J. W. Wallace, and Herbert E. Warfel.

Users of this Directory will wish to know what is meant by certain words and phrases found in almost all works of this kind, but which vary slightly in meaning from one author to another. Definitions of these words and phrases follow:

Abundance.—The terms "common," "uncommon," and "rare" are used to indicate relative abundance in Kansas. There is little gain in using more categories, particularly since we deal so often with relative conspicuousness rather than with actual numbers; for instance, the Eastern Phoebe and the Red-tailed Hawk are both treated as "common" and, although there are many more phoebes than red-tails here, the designations are true ones. "Vagrant," in the sense of wanderer (either regular or irregular), applies to species that have been recorded ordinarily less than four times.

Habitat Preference.—In most of the following accounts there are brief, stylized statements about types of vegetation or situations in which the species occur. The terms used in such statements are defined below.

DECIDUOUS FOREST refers to mature oak-hickory-walnut vegetation in which the canopy tends to be continuous and the vegetation of lesser height stratified in the way it probably was when European man reached the state; such vegetation is found in a few places in eastern Kansas.

WOODLAND refers to various plant formations having trees as the dominant vegetation and in which spacing of the trees is such that no continuous canopy is formed and in which there is frequently rank understory. Included here are oak-hickory second growth of intermediate age, elm associations (including the "urban parkland" of cities and towns), and riparian woodland. Woodland is scattered throughout Kansas, but the oak-hickory types are chiefly east of a north-south line extending through Wichita.

GRASSLAND refers chiefly to eastern tallgrass prairie, the mixed prairie, and the western shortgrass prairie, but includes an open, savannahlike formation of ecotonal character in the southeastern and south-central sectors.

SCRUB refers to oldfield second-growth, frequently dense and rank (chiefly in eastern Kansas), juniper scrub, sagebrush (chiefly in the southwest), and blackjack oak scrub (chiefly in the south).

PONDS and LAKES refer to lacustrine water and its edge exclusive of vegetation.

STREAMS and RIVERS refer to fluviatile water and its edge exclusive of vegetation.

MARSH refers to cattail and sedge marshes in standing water, and salt marshes with attendant alkaline flats.

Throughout the accounts below there is reference to "edge"; this refers simply to the boundary, not necessarily a precise one, between two types of vegetation.

The Latin names of plants mentioned in text by vernacular names are: western juniper, *Juniperus scopularum;* red cedar, *Juniperus virginiana;* cottonwood, *Populus deltoides;* black walnut, *Juglans nigra;* hickory, *Carya ovata;* blackjack oak, *Quercus marilandica;* oaks, *Quercus* spp.; American elm, *Ulmus americana;* hackberry, *Celtis* spp.; mulberry, *Morus rubra;* osage orange, *Maclura pomifera;* sycamore, *Platanus occidentalis;* plum, *Prunus* spp.; red haw, *Crataegus mollis;* honey locust, *Gleditsia triacanthos;* box elder, *Acer negundo;* maples, *Acer* spp.; dogwood, *Cornus drummondi;* ash, *Fraxinus americana;* willows, *Salix* spp.; coralberry, *Symphoricarpos orbiculatus;* clover, *Melilotus* sp., currant and gooseberry, *Ribes,* spp.; roses, *Rosa* spp.; grape, *Vitis* spp.; honeysuckle, *Lonicera* sp.; sage, *Artemisia filifolia;* bluestems, *Andropogon gerardi* and *A. scoparius;* blue grama, *Bouteloua gracilis;* buffalo grass, *Buchloë dactyloides.*

Dates of occurrence.—The dates for occurrence listed in the accounts of species are the *extreme* dates to be found for the state of Kansas; most of the dates have chief validity for the northeastern sector. The dates have been extracted from pertinent published material (Linsdale and Hall, 1927; Miller and Boyd, 1947; Fitch, 1958; Thompson, 1960), the specimens at the Museum of Natural History of The University of Kansas, and unpublished field notes on file at the Museum of Natural History (those of the late Dr. John W. Porter, for the vicinity of Concordia, Cloud County, and my own for Douglas County.)

Miller and Boyd (*loc. cit.*) listed occurrence by weekly period; I have converted 21 of these to numbered dates, to conform to the policy in the rest of the Directory. In each instance I used the most conservative date possible for any week in question; these conservative translations, it should be noted, are still the most extreme dates available. For three additional species the exact dates of occurrence were obtained from the field notes of Dr. Ivan L. Boyd, whose assistance in this matter has been greatly appreciated.

Nearly all of the dates are extremes as now known and as such will almost always show *within* what time period a species is present in the northeast. For other sectors of the state, judicious extrapolation of the listed dates will be of some use. In the south, for example, dates of arrival in at least some years would be expected to be one or two days earlier in spring and later in autumn. Also, toward the extremity of the range of a species, or in suboptimum habitat, it is possible to note regular departure from the listed dates. Such departures are usually in the direction of "late"; for example, the Purple Martin arrives in Concordia on or after March 25, which is almost three weeks later than the earliest date of arrival in Douglas County.

Breeding schedule.—The dates listed are those for completion of clutches, and are from the files of the Kansas Breeding Bird Survey of the Kansas Ornithological Society, the support of which Society is hereby acknowledged. About 9,500 records of birds breeding in Kansas were available, 3,200 of them from the notebooks of Dr. John W. Porter for the vicinity of Concordia. In text below the extent of the egg-laying season is indicated, in a general way, as: "Eggs laid early April to mid-July, peak April 20-30 . . ." This means that the earliest record for completing a clutch is in the first ten days of April, that for the latest completed clutch is in the central ten days of July, and that most of the records (the mode) are in the last ten days of April. These schedules are generalities drawn from field records covering many seasons; they cannot, therefore, do more than represent *average* schedules for the species treated. The records are also chiefly of birds in northeastern Kansas, but breeding seasons elsewhere in the state will not depart drastically from those outlined for the northeast.

Number of eggs.—Clutch-size is listed in a standardized fashion, for example, as follows: Number of eggs 3 (3.55, 2-5; 47); this means that most clutches examined had three eggs, the average number was 3.55 eggs per clutch, there were as few as two and as many as five in some clutches, and 47 records were used in drawing these conclusions.

References to additional literature.—For any species there may be two kinds of citation to literature concerning the species. The first is in the text and documents some matter pertaining to the species in Kansas; the citation is abbreviated and is found in more detail in a terminal "Literature Cited," arranged alphabetically by author and chronologically thereafter. The second kind of citation is in

small type at the end of some accounts of species; this citation is a minimally complete reference to a fuller account of natural history of a species. Most species lacking such a reference will be found to be variously treated in the series of life history accounts by Arthur C. Bent (1919-1958). The parts published to date are listed in literature cited at the end of this directory; as yet the parts relating to grosbeaks, finches, and buntings ("Fringillidae") are unpublished.

Accounts of Species

Specimens of 379 species (461 species and subspecies) of birds are known to have been taken in Kansas. Other species reported from the State but not supported by specimens have been accorded hypothetical standing; accounts of such species are enclosed in brackets. They may encourage the collection of species not yet supported by specimens.

An asterisk means that the species it designates is known to breed in Kansas.

The nomenclatural and taxonomic treatments in the Directory are those of the American Ornithologists' Union Check-list Committee (1957), except as outlined immediately below. Blue and Snow geese are considered to be only varieties of a single species, *Chen caerulescens;* the Red-eyed Vireo is considered polytypic, including *Vireo "flavoviridis"; Buteo "harlani"* is considered a subspecies of *B. jamaicensis; Charadrius "semipalmatus"* is considered a subspecies of the holarctic *C. hiaticula;* the Shoveler is considered a member of the genus *Anas; Seiurus noveboracensis* seems best considered monotypic (Eaton, 1957); finally, I follow the usage of Miller, Friedmann, Griscom, and Moore (1957:83) in retaining Swainson's name for the Western Wood Pewee, *Contopus richardsonii.* These departures from the nomenclature of the A. O. U. Check-list are the result of my appraisal of data in the pertinent literature, my personal examination of museum specimens, and my observations of the birds in the field.

Gavia immer (Brünnich): Common Loon. Uncommon transient, on lakes and rivers. Present northeast March 11-June 22, August 7-December 8, but December 16 in Cowley County.

Olson, S. T. and Marshall, W. H. (1952), The common loon in Minnesota. Minnesota Mus. Nat. Hist. Occasional Papers, 5:vi+77pp.

Gavia stellata (Pontoppidan): Red-throated Loon. Rare transient, October-May, on lakes and rivers. One specimen (KU 36238): Marais des Cygnes River, near Ottawa, Franklin County, October 20, 1925.

Podiceps grisegena (Boddaert): Red-necked Grebe. Rare transient, September-October, on lakes and rivers. One specimen (KU 7697): Kansas River east of Lawrence, Douglas County, October 29, 1910. *P. g. hoböllii* (Reinhardt) occurs in Kansas.

Podiceps auritus (Linnaeus): Horned Grebe. Rare transient, on ponds, lakes and rivers. Specimens only from Barber, Riley, and Douglas counties. Present March 14-May 19, September 4-November 30. *P. a. cornutus* Gmelin occurs in Kansas.

Hosking, E. J. (1949), Horned Grebe—courtship and display. Canadian Nature, 11:150-153.

Podiceps caspicus (Hablizl): Eared Grebe. Uncommon regular transient, on ponds, lakes, and rivers. Present April 13-June 11, July 26-December 7. *P. c. californicus* (Heermann) occurs in Kansas.

McAllister, N. M. (1958), Courtship, hostile behavior, nest-establishment and egg laying in the eared grebe (*Podiceps caspicus*). Auk. 75:290-311.

Aechmophorus occidentalis (Lawrence): Western Grebe. Rare transient, on lakes and rivers; probably more common in west than east. Present northeast May 7-22, October 14-November 22.

Lawrence, G. E. (1950), The diving and feeding activity of the western grebe on the breeding grounds. Condor, 52:3-16.

* *Podilymbus podiceps* (Linnaeus): Pied-billed Grebe. Common transient, uncommon summer resident, in marshes, ponds, ditches, lakes, and rivers. Present chiefly in passage, March 1-June 2, July 14-December 29. Egg records from Lyon, Stafford, and Barton counties, mid-May to mid-June. Number of eggs 4-10. Requires established marsh for nesting. *P. p. podiceps* (Linnaeus) occurs in Kansas.

Glover, F. M. (1935), Nesting ecology of the pied-billed grebe in northwestern Iowa. Wilson Bull., 65:32-39.

Pelecanus erythrorhynchos Gmelin: White Pelican. Common transient, ordinarily about lakes, marshes, and rivers. Present March 25-November 22.

Pelecanus occidentalis Gmelin: Brown Pelican. Vagrant. One specimen (KU 10468): Parker, Linn County, June, 1916; one seen Sedgwick County, April 25, 1910 (Iseley, 1912:42). *P. o. carolinensis* Gmelin occurs in Kansas.

Murphy, R. C. (1936), Oceanic Birds of South America. Amer. Mus. Nat. Hist., New York, xxii+1245pp.

* *Phalacrocorax auritus* (Lesson): Double-crested Cormorant. Uncommon regular transient, near lakes and rivers. Present northeast February 21-May 24, September 7-December 15. Nesting rec-

ords from Barton County; eggs and small young, August, 1951 (Tordoff, 1956:311). *P. a. auritus* (Lesson) occurs in Kansas.

Bartholomew, G. A. (1943), Contests of double-crested cormorants for perching sites. Condor, 45:186-195.

Phalacrocorax olivaceus (Humboldt): Olivaceus Cormorant. Vagrant. One record; specimen (now lost) taken 4 miles south Lawrence, Douglas County, April 2, 1872; identification by S. F. Baird and R. Ridgway. *P. o. mexicanus* (Brandt), occurs in Kansas.

Anhinga anhinga (Linnaeus): Anhinga. Rare post-breeding visitant. Several specimens and sight records, most recently from Barton County (Tordoff, 1956:311). *A. a. leucogaster* (Vieillot) occurs in Kansas.

Meanley, B. (1954), Nesting of the water-turkey in eastern Arkansas. Wilson Bull., 66:81-88.

Fregata magnificens Mathews: Magnificent Frigate-bird. Vagrant. One specimen: North Fork of Solomon River, Osborne County, August 16, 1880 (Goss, 1891:47). *F. m. rothschildi* Mathews occurs in Kansas.

For reference see Brown Pelican.

* *Ardea herodias* Linnaeus: Great Blue Heron. Common transient and summer resident, more numerous in east, along rivers and in marshes; a few present east and south in mid-winter. Eggs laid mid-March to early May, peak April 10-20; single-brooded. Number of eggs about 4 (3.83, 2-6; 6); brood sizes almost always much less. Nests placed about 40 feet high in sycamore, cottonwood, less frequently elm, hackberry, others, along water courses. *A. h. herodias* Linnaeus occurs in northeastern, *A. h. wardi* Ridgway in southeastern, and *A. h. treganzai* Court in western Kansas.

Andrews, T. F., and Stephens, H. A. (1956), Colonies of great blue heron (*Ardea herodias*) in Kansas. Trans. Kansas Acad. Sci., 59:279-308.

* *Butorides virescens* (Linnaeus): Green Heron. Common transient and summer resident, in riparian, lakeside, and marsh habitats. Present northeast March 29-October 30. Eggs laid late April to late June, peak May 10-20; probably single-brooded. Number of eggs 3 (3.23, 2-5; 13). Nests placed in waterside vegetation, 2 to 15 feet high. *B. v. virescens* (Linnaeus) occurs in Kansas.

Wheelock, I. C. (1906), Nesting habits of the green heron. Auk. 23:432-436.

* *Florida caerulea* (Linnaeus): Little Blue Heron. Postbreeding summer visitant in state and rare summer resident in southwest, in marshes, lakes and river edges. Recorded April, May, July, August, September. One nest, summer 1952, 6 miles north, 4½

miles west Garden City, Finney County (Tordoff, 1956:312). *F. c. caerulea* (Linnaeus) occurs in Kansas.

Meanley, B. (1955), A nesting study of the little blue heron in eastern Arkansas. Wilson Bull., 67:84-99.

* ***Casmerodius albus*** (Linnaeus): Common Egret. Postbreeding summer visitant in state, rare local summer resident, along stream and lake edges and marshes. Present April 14-September 30. Nests sparingly in Great Blue Heron colonies in southern Cowley County (K. Downing, personal communication). *C. a. egretta* (Gmelin) occurs in Kansas.

* ***Leucophoyx thula*** (Molina): Snowy Egret. Postbreeding summer visitant in state and rare local summer resident, along stream and lake edges and marshes. Recorded April-October. Two nests found summer, 1952, 6 miles north, 4½ miles west Garden City, Finney County (Tordoff, 1956:312). *L. t. thula* (Molina) occurs in Kansas.

Hydranassa tricolor (Müller): Louisiana Heron. Postbreeding vagrant. One specimen, McPherson County, August 9, 1934; sight record, Atchison County, September 12, 1948 (Tordoff, 1956:312). *H. t. ruficollis* (Gosse) occurs in Kansas.

* ***Nycticorax nycticorax*** (Linnaeus): Black-crowned Night Heron. Common transient and local summer resident, along streams and lake edges, and marshes. Present northeast March 27-November 11. Colonies scattered; eggs laid early May to early June, young fledge in July and August. *N. n. hoactli* (Gmelin) occurs in Kansas.

Allen, R. P., and Mangels, F. P. (1940), Studies of the nesting behavior of the black-crowned night heron. Proc. Linnean Soc. New York 50-51:1-28.

Nyctanassa violacea (Linnaeus): Yellow-crowned Night Heron. Local, widely distributed transient and summer resident in riparian habitats, less numerous in north. Present northeast April 27-August 20. *N. v. violacea* (Linnaeus) occurs in Kansas.

* ***Ixobrychus exilis*** (Gmelin): Least Bittern. Transient and uncommon summer resident, in marshlands. Present April 9-October 24. Two nests found June 3, 1949, Johnson County (Tordoff, 1956: 321); species reported common, Stafford County salt marshes, June, 1958 (Thompson, MS). *I. e. exilis* (Gmelin) occurs in Kansas.

* ***Botaurus lengtiginosus*** (Rackett): American Bittern. Common transient, local summer resident, in marshlands and fields of heavy grass. Present April 4-December 12. Two nesting records: 4 eggs, laid about May 10, 1951, Welda, Anderson County; eggs, Summer, 1952, Finney County (Tordoff, 1956:312).

Mousley, H. (1939), Home life of the American bittern. Wilson Bull., 51:83-85.

Mycteria americana Linnaeus: Wood Ibis. Vagrant. One specimen (KU 9489): Goodland, Sherman County, October 4, 1913.

Rechnitzer, A. B. (1956), Foraging habits and local movements of the wood ibis in San Diego County, California. Condor, 58:427-432.

* *Plegadis chihi* (Vieillot): White-faced Ibis. Transient and rare summer resident, on marshlands and shallow rivers. Recorded May 14-October 6. One nesting record: Barton County, young, summer, 1951, L. O. Mossman (1952:7).

Ajaia ajaja (Linnaeus): Roseate Spoonbill. Vagrant. One specimen: Butler County, March 20, 1899 (Tordoff, 1956:313).

Allen, R. P. (1942), The roseate spoonbill. Nat. Aud. Soc. Res. Repts., No. 2:142 pp.

Phoenicopterus ruber Linnaeus: American Flamingo. Vagrant. One specimen (in headquarters, Kansas Forestry, Fish and Game Commission, Pratt): Stafford County, autumn, 1928.

Allen, R. P. (1956), The flamingos: their life history and survival. Nat. Aud. Soc. Res. Repts., No. 6.

Olor columbianus (Ord): Whistling Swan. Rare transient and winter visitant, on lakes and marshlands. Formerly common, when many specimens taken, November 1-April 6.

Stewart, R. E., and Manning, J. H. (1958), Distribution and ecology of whistling swans in the Chesapeake Bay region. Auk, 75:203-212.

[*Olor buccinator* (Richardson): Trumpeter Swan. No longer occurs in Kansas, but early sight records from the Great Plains indicate it probably did once; no specimen from Kansas.]

* *Branta canadensis* (Linnaeus): Canada Goose. Common transient and irregular local winter resident, on marshland and prairie. Present September 18-June 19, a few (sick?) birds remaining through summer. Formerly nested along Missouri River; original breeding populations now extirpated in Kansas. *B. c. moffitti* Aldrich, *B. c. leucopareia* (Brandt), *B. c. minima* Ridgway and *B. c. hutchinsi* (Richardson), occur in Kansas.

Kossack, C. W. (1950), Breeding habits of Canada Geese under refuge conditions. Amer. Midl. Nat., 43:627-649.

Branta bernicla (Linnaeus): Brant. Vagrant. One specimen (KU 7490): Leavenworth County, November 15, 1879; several sight records, widely scattered, mostly east. *B. b. hrota* (Müller) occurs in Kansas.

Anser albifrons (Scopoli): White-fronted Goose. Common transient, chiefly central and west, on lakes, marshland, and prairie. Present September 24-June 2. *A. a. frontalis* Baird occurs in Kansas.

Chen caerulescens (Linnaeus): Snow Goose. Common transient, on lakes, marshlands, and prairie. Present October 3-May 11. Included in this species designation are geese from populations formerly considered specifically distinct ("Blue Goose") but now best considered a color phase of a polymorphic species. *C. c. caerulescens* (Linnaeus) occurs throughout the state; *C. c. hyperborea* (Pallas) occurs in eastern Kansas, chiefly in spring.

Soper, D. J. (1942), Life history of the blue goose. Proc. Boston Soc. Nat. Hist., 42:121-225.

[*Chen rossi* (Cassin): Ross Goose. Probably vagrant; one sight record at Wyandotte County Lake, November 22, 1951; no specimen from Kansas.]

Dendrocygna bicolor (Vieillot): Fulvous Tree Duck. Vagrant; three individuals killed at Cheyenne Bottoms, Barton County, in 1929 or 1930, not saved as specimens (Tordoff, 1956:314). *D. b. helva* Wetmore and Peters, on geographic grounds, occurs in Kansas.

Meanley, B., and Meanley, A. G. (1959), Observations on the fulvous tree duck in Louisiana. Wilson Bull., 71:33-45.

* *Anas platyrhynchos* Linnaeus: Mallard. Common transient and winter resident, uncommon local summer resident, in and around marshes and lakes. Time of greatest abundance October to April. Eggs laid from first week in April to mid-May, peak perhaps in first week of May; single-brooded. Number of eggs around 12, brood size of half-grown young around 6. Nests placed usually near water, on raised ground with fairly heavy grassy cover. *A. p. platyrhynchos* Linnaeus occurs in Kansas.

Bellrose, F. C. (1958), Celestial orientation by wild mallards. Bird-Banding, 29:75-90.

Anas rubripes Brewster: Black Duck. Rare to uncommon transient and winter resident in eastern and central sectors. Present northeast September 29-May 8.

Anas fulvigula Ridgway: Mottled Duck. Vagrant; one specimen: Neosho Falls, March 11, 1876 (Goss, 1891:57). *A. f. maculosa* Sennett occurs in Kansas.

Anas strepera Linnaeus: Gadwall. Common transient, uncommon winter resident, rare summer resident, around marshes and lakes. Time of chief occurrence late September to mid-May, but has been seen all months of year. No satisfactory nesting record.

* *Anas acuta* Linnaeus: Pintail. Common transient, uncommon winter resident, local summer resident, around marshes and lakes. Time of greatest abundance September to May; not often seen midwinter. Eggs laid late April to early June, peak probably in early May; single-brooded. Number of eggs around 10, brood-sizes of

half-grown young 5 to 8. Recent nesting records from Finney, Barton, Stafford, Meade, and Leavenworth counties. Nest placed near water, on raised ground under grassy cover.

Munro, J. A. (1944), Studies of waterfowl in British Columbia. Pintail. Canadian Jour. Res., 22:60-86.

Anas carolinensis Gmelin: Green-winged Teal. Common transient, rare winter resident, around marshes and ponds. Present northeast chiefly September 8-December 9, January 29-June 11.

* *Anas discors* Linnaeus: Blue-winged Teal. Common transient, locally common summer resident, around marshes and ponds. Generally absent from state November 26-March 9. Eggs laid early May; single-brooded. Brood-sizes in June average 6 young. *A. d. discors* Linnaeus occurs in Kansas.

Bennett, L. J. (1938), The blue-winged teal. Collegiate Press, Ames, Iowa. 144 pp.

Anas cyanoptera Vieillot: Cinnamon Teal. Uncommon to rare transient, more numerous in west, around marshes and ponds. Noted chiefly in spring migration, March 27-June 6. *A. c. septentrionalium* Snyder and Lumsden occurs in Kansas.

* *Anas clypeata* Linnaeus: Shoveler. Common transient, rare and irregular summer resident, rare winter resident around marshes, ponds, lakes and streams. Ordinarily absent from state December and January. Two nesting records, from Barton and Finney counties (Tordoff, 1956:315).

Girard, G. L. (1939), Notes on the life history of the shoveler. Trans. Fourth N. Amer. Wildl. Conf., 364-371.

[*Mareca penelope* (Linnaeus): European Widgeon. Probably vagrant; several sight records, one at Lake Shawnee, Shawnee County, April 16, 1954 (Tordoff, 1956:315); no specimen from Kansas.]

Mareca americana (Gmelin): American Widgeon. Common transient, rare winter resident, around ponds, marshes, streams, and lakes. Occurs chiefly February 10-June 10, lesser numbers October 17-November 11, rare December-January.

* *Aix sponsa* (Linnaeus): Wood Duck. Rare transient in west; locally common transient and uncommon summer resident in extreme east, around wooded ponds and streams. Present northeast March 5-December 8, most abundant in October. Eggs laid late March to late April, probably single-brooded. Number of eggs around 14, but up to 23 in Linn County. Nests in hollows of trees 10 to 70 feet high.

Stewart, P. A. (1958), Local movements of wood ducks (*Aix sponsa*). Auk, 75:157-168.

* *Aythya americana* (Eyton): Redhead. Uncommon transient and winter resident, in marshes, lakes and rivers. Present northeast chiefly February 17-May 25, October 6-November 22, a few present mid-winter. One pair reported to have nested at Cheyenne Bottoms, Barton County, in or around 1928 (Tordoff, 1956:316).

Weller, M. W. (1957), Growth, weights and plumages of the redhead, *Aythya americana*. Wilson Bull., 69:5-38.

Aythya collaris (Donovan): Ring-necked Duck. Common to uncommon transient, rare winter resident, in marshes, lakes and rivers. Present chiefly February 21-May 7, October 23-November 14, a few in mid-winter.

Mendall, H. L. (1958), The ring-necked duck in the northeast. Univ. Maine Studies, Ser. 2, 73:320pp.

Aythya valisineria (Wilson): Canvasback. Common to uncommon transient, rare winter resident, in lakes and rivers. Present chiefly February 11-May 10, October 6-November 22, a few mid-winter.

Hochbaum, H. A. (1944), The canvasback on a prairie marsh. Amer. Wildlife Inst., Washington, D. C., 201 pp.

Aythya marila (Linnaeus): Greater Scaup. Rare transient, but status poorly known, on lakes and rivers. Several sight records, chiefly March and April; individuals killed in Barber and Barton counties, no specimens saved (Tordoff, 1956:316). *A. m. nearctica* Stejneger, on geographic grounds, occurs in Kansas.

Aythya affinis (Eyton): Lesser Scaup. Common transient and rare winter resident, found on lakes and rivers. Present northeast September 4-June 18; sight records through summer. Probably breeds sparingly in eastern Kansas.

Bucephala clangula (Linnaeus): Common Goldeneye. Uncommon transient and winter resident, on lakes and rivers. Occurs northeast November 8-May 8. *B. c. americana* (Bonaparte), occurs in Kansas.

Bucephala albeola (Linnaeus): Bufflehead. Common to uncommon transient, rare winter resident, on lakes and rivers. Occurs most frequently March 4-April 24, September 19-November 27.

Clangula hyemalis (Linnaeus): Oldsquaw. Rare transient and winter visitant, on lakes and rivers. At least six specimens taken, three extant, many sight records. Present November to April.

Somateria mollissima (Linnaeus): Common Eider. Vagrant. One specimen (KU 3620): November 3, 1891, on Kansas River

near Lecompton, Douglas County. S. *m. v. nigra* Bonaparte occurs in Kansas.

Gross, A. O. (1938), Eider ducks of Kent's Island. Auk, 55:387-400.

Somateria spectabilis (Linnaeus): King Eider. Vagrant; one specimen (KU 27487): November 27, 1947, on Kansas River one mile east Lawrence, Douglas County.

Melanitta deglandi (Bonaparte): White-winged Scoter. Rare transient in extreme northeastern Kansas, on lakes and rivers. Nine specimens, all from Douglas and Leavenworth counties, all in November. *M. d. deglandi* (Bonaparte) occurs in Kansas.

Melanitta perspicillata (Linnaeus): Surf Scoter. Rare transient in northeastern Kansas, on lakes and rivers. Eight specimens, seven from Douglas County, one from Sedgwick County, all in October and November.

Oidemia nigra (Linnaeus): Common Scoter. Vagrant. L. B. Carson identified an adult ♂ killed at Horton Lake, Brown County, in early 1930s (Tordoff, 1956:317). *O. n. americana* Swainson occurs in Kansas.

* ***Oxyura jamaicensis*** (Gmelin): Ruddy Duck. Common transient, rare winter resident, local summer resident, around marshes, lakes and ponds. Seen most frequently March, April, May, October, and November. Nesting records for Barton, Stafford and Grant counties. *O. j. rubida* (Wilson) occurs in Kansas.

Low, J. B. (1941), Nesting of the ruddy duck in Iowa. Auk, 58:506-517.

Lophodytes cucullatus (Linnaeus): Hooded Merganser. Uncommon transient and winter resident, found around ponds, lakes and streams. Present northeast October 29-May 1, but sight records in summer and two specimens (KU 6327, 8728) taken mid-June, Douglas County; probably occasionally breeds northeast.

Mergus merganser Linnaeus: Common Merganser. Common transient and winter resident, found on lakes and streams. Present northeast October 21 to May 9, most numerous February and March; sight record in July. *M. m. americanus* Cassin occurs in Kansas.

Roberts, A. A., and Huntington, E. H. (1959), Food habits of the merganser in New Mexico. New Mexico Dept. Game and Fish Bull., 9:1-36.

Mergus serrator Linnaeus: Red-breasted Merganser. Uncommon transient, found on ponds, lakes and rivers. Present northeast March 16-June 1, November 2-December 8. *M. s. serrator* Linnaeus occurs in Kansas.

* ***Cathartes aura*** (Linnaeus): Turkey Vulture. Common transient, regular summer resident, found over all kinds of habitats. Present northeast March 7-October 28. Eggs laid April and May, single-brooded. Number of eggs about two. Nests placed in holes and crevices in cliffs and trees, occasionally on ground. *C. a. teter* Friedmann occurs in Kansas.

Coles, V. (1944), Nesting of the turkey vulture in Ohio caves. Auk, 61: 219-228.

* ***Coragyps atratus*** (Meyer): Black Vulture. Former, possibly current, summer resident in southeast. Nesting record for Labette County (Goss; 1891:245). Specimen purported (Goss, *loc. cit.*) taken at Ellis, Ellis County, March 27, 1885, present whereabouts unknown.

* ***Elanoides forficatus*** (Linnaeus): Swallow-tailed Kite. Former summer resident in east, now of indeterminate status; last specimen from Kansas taken at Hamilton, Greenwood County, May 17, 1914. Breeding season probably late (eggs laid in May). *E. f. forficatus* (Linnaeus) occurs in Kansas.

* ***Ictinia misisippiensis*** (Wilson): Mississippi Kite. Common summer resident in south-central sector, north to Barton County, and formerly northeast, in riparian woodland edge. Present May 16-September 25. Eggs laid late May-early June, single-brooded. Number of eggs 2. Nests placed 25 to 50 feet high in large trees (cottonwood).

Sutton, G. H. (1939), The Mississippi kite in spring. Condor, 41:41-53.

Accipiter gentilis (Linnaeus): Goshawk. Rare and irregular winter visitant, less numerous in west. Records from October 27-February 24. *A. g. atricapillus* (Wilson) occurs in Kansas.

Schnell, J. H. (1958), Nesting behavior and food habits of goshawks in the Sierra Nevada of California. Condor, 60:377-403.

* ***Accipiter striatus*** Vieillot: Sharp-shinned Hawk. Transient and winter resident in forests and woodland, less numerous in east, rare and irregular summer resident in north, east of Cloud County. Occurs in numbers chiefly in September and January through May, but seen every month. Nests found Cloud County (July 11, 1938) and Pottawatomie County (April, 1954). Eggs laid probably in April, nests placed 15 to 40 feet high in exotic conifers or deciduous trees. *A. s. velox* (Wilson) occurs in Kansas.

* ***Accipiter cooperii*** (Bonaparte): Cooper Hawk. Resident, but nesting records only from Cloud County east; numbers augmented in winter from north. Occurs in woodland. Eggs laid late March to late May, peak April 20-30; single-brooded. Number of eggs 4

(3.80, 2-5; 5). Nests placed 15 to 30 feet high in large deciduous trees.

* ***Buteo jamaicensis*** (Gmelin): Red-tailed Hawk. Common resident, transient, and winter resident, in grassland, parkland, broken woodland, and woodland edge. Eggs laid late February to first week of April, peak March 1-10; single-brooded. Number of eggs 3 (2.75, 2-3; 8). Nests placed in crotches, 15-65 feet high, of cottonwood, elm, oak. *B. j. borealis* (Gmelin) breeds in eastern Kansas, *B. j. calurus* Cassin probably breeds in west (no specimens available); *B. j. kriderii* Hoopes and *B. j. harlani* (Audubon) transients and winter residents.

Fitch, H. S., Swenson, S., and Tillotson, D. F. (1946), Behavior and food habits of the red-tailed hawk. Condor, 48:205-237.

* ***Buteo lineatus*** (Gmelin): Red-shouldered Hawk. Uncommon transient and summer resident, rare winter resident in east, chiefly along riparian groves and bottomland timber. Present northeast March-December. Nesting records only from Leavenworth, Woodson, and Linn counties; eggs laid March and April. *B. l. lineatus* (Gmelin) occurs in Kansas.

Stewart, R. E. (1949), Ecology of a nesting red-shouldered hawk population. Wilson Bull., 61:26-35.

* ***Buteo platypterus*** (Vieillot): Broad-winged Hawk. Uncommon transient and summer resident in east, in woodland and edge. Present northeast April 4-October 20. Breeding records from Douglas, Leavenworth, and Johnson counties, and from Missouri across from Wyandotte County. *B. p. platypterus* (Vieillot) occurs in Kansas.

Burns, F. L. (1911), A monograph of the broad-winged hawk (*Buteo platypterus*). Wilson Bull., 23:143-320.

* ***Buteo swainsoni*** Bonaparte: Swainson Hawk. Common transient and summer resident, most numerous in west, in open prairie having scattered groves and trees. Present northeast March 21-November 2; sight records in midwinter need documentation by specimens. Eggs laid mid-April to mid-May, peak April 20-30; single-brooded. Number of eggs 3 (2.50, 2-3; 4). Nests placed 15 to 40 feet high in mature deciduous trees.

Buteo lagopus (Pontoppidan): Rough-legged Hawk. Common winter resident, less numerous in east, in grassland having scattered trees. Present northcentral sector September 21-April 8, largest numbers December to March. *B. l. s. johannis* (Gmelin) occurs in Kansas.

Barth, E. K. (1952), Breeding biology of the rough-legged buzzard and variations in the populations in 1938-1952. Papers on Game Research, 8:127-138.

* *Buteo regalis* (Gray): Ferruginous Hawk. Common transient and winter resident in west, rare in east; rare summer resident in west. Occurs in grassland having scattered trees. Nesting records for Hamilton, Wallace, Finney, and Logan counties. Eggs laid late April to mid-March, single-brooded. Number of eggs 3 (3.25, 3-4; 4). Nests placed on cliffs or in small trees (cottonwood, osage-orange, mulberry), near ground.

Parabuteo unicinctus (Temminck): Harris Hawk. Vagrant. Two records: Wichita, Sedgwick County, December 14, 1918 (Snyder, 1919:567); 7½ miles southwest Lawrence, Douglas County (KU 10752), December 25, 1918. *P. u. harrisi* (Audubon) occurs in Kansas.

* *Aquila chrysaëtos* (Linnaeus): Golden Eagle. Common winter visitant in west, rare in east, in grassland, woodland. Occurs October 28-June 19. One nesting record, based on strong indirect evidence (Goss, 1891:273), for southeastern Comanche County, prior to 1891. *A. c. canadensis* (Linnaeus) occurs in Kansas.

Carnie, S. K. (1954), Food habits of nesting golden eagles in the coast ranges of California. Condor, 56:3-12.

Haliaeetus leucocephalus (Linnaeus): Bald Eagle. Common local winter resident in west, rare in east where usually transient, chiefly around large lakes and rivers. Occurs October 17-May 4. *H. l. alascanus* Townsend occurs in Kansas.

Herrick, F. H. (1934), The American eagle. New York.

* *Circus cyaneus* (Linnaeus): Marsh Hawk. Common transient and winter resident, uncommon resident, in marshland and grassland. Eggs laid late April to mid-May, peak between May 1 and 10; single-brooded. Number of eggs 5 (5.00, 3-7; 9); one clutch of 10 eggs for Anderson County, (W. R. Brecheisen, MS), but probably laid by two females. Nests placed in fields, within a few inches of ground surface, under light grassy cover. *C. c. hudsonius* (Linnaeus) occurs in Kansas.

Hecht, W. R. (1951), Nesting of the marsh hawk at Delta, Manitoba. Wilson Bull., 63:167-176.

Pandion haliaetus (Linnaeus): Osprey. Uncommon and irregular transient and temporary local resident, near large lakes and rivers. Most frequently occurs April, May, September, and October, but may be seen any time. *P. h. carolinensis* (Gmelin) occurs in Kansas.

Abbott, C. G. (1911). The home-life of the osprey. London.

Falco rusticolus Linnaeus: Gyrfalcon. Vagrant. One specimen (KU 34262): Ashland, Clark County (not Manhattan, Riley

County), December 1, 1880. *F. r. obsoletus* Gmelin occurs in Kansas.

Falco mexicanus Schlegel: Prairie Falcon. Rare summer and uncommon winter resident in west, rare transient and winter resident in east, in grassland with rugged dissection. Present northeast sporadically September through May.

* *Falco peregrinus* Tunstall: Peregrine Falcon. Rare transient and winter resident, typically around marshes, lakes and rivers. Formerly nested, most notably at Neosho Falls, Woodson County (Goss, 1891:283); here eggs laid February and March, nests placed 50-60 feet high in open cavities of broken limbs of sycamores. *F. p. anatum* Bonaparte occurs in Kansas.

Beebe, F. L. (1960), The marine peregrines of the Pacific coast. Condor, 62:145-189.

Falco columbarius Linnaeus: Pigeon Hawk. Uncommon transient and rare winter resident, in open woodland and edge. Most conspicuous late winter—early spring. *F. c. columbarius* Linnaeus occurs in eastern Kansas, *F. c. richardsonii* Ridgway in west; *F. c. bendirei* Swann is vagrant.

Lawrence, L. de K. (1949), Notes on nesting pigeon hawks at Pimisi Bay, Ontario. Wilson Bull., 61:15-25.

* *Falco sparverius* Linnaeus: Sparrow Hawk. Common resident and transient, in parkland and woodland edge. Eggs laid early April to late May; single-brooded. Nests placed in cavities, 12 to 30 feet high, in trees, buildings, martin houses. *F. s. sparverius* Linnaeus occurs in Kansas.

Roest, A. I. (1957), Notes on the American sparrow hawk. Auk, 74:1-19.

Bonasa umbellus (Linnaeus): Ruffed Grouse. Probably vagrant in east, formerly common resident, breeding populations now extirpated; found in deciduous woodland. One specimen (KU 31944): southeastern Kansas, between 1885 and 1910. *B. u. umbellus* (Linnaeus) occurred in Kansas.

Bump, G., Darrow, R. W., Edminister, F. C., and Crissey, W. F. (1947), The ruffed grouse . . . New York State Conserv. Dept., xxxvi+915pp.

* *Tympanuchus cupido* (Linnaeus): Greater Prairie Chicken. Common, highly local resident, particularly in eastern third, absent in west except for scattered flocks in northwest; to be found chiefly in and about full bluestem prairie grassland. Eggs laid from first week in May to first of June, peak May 1 to 10; single-brooded. Number of eggs 12 (11.8, 9-15; 15). Nests placed on ground in bluestem grassland, usually with light grassy cover. *T. c. pinnatus* (Brewster) occurs in Kansas.

Baker, M. F. (1953), Prairie chickens of Kansas. Univ. Kansas Misc. Publ., 5:1-86.

* ***Tympanuchus pallidicinctus*** (Ridgway): Lesser Prairie Chicken. Local resident in sandy grasslands in southwest, no farther north and east than Pawnee County. Natural history thought to be similar to that of preceding species, but no information available.

For reference, see Greater Prairie Chicken.

Pedioecetes phasianellus (Linnaeus): Sharp-tailed Grouse. Possibly rare and local resident in extreme northwest, but thought to be extirpated; formerly resident in much of west. *P. p. jamesi* Lincoln occurred in Kansas.

Marshall, W. H., and Jensen, M. S. (1937), Winter and spring studies of the sharp-tailed grouse in Utah. Jour. Wldlf. Man., 1:87-99.

* ***Colinus virginianus*** (Linnaeus): Bobwhite. Common resident, local and less numerous in west, in open country with abundant scattered brush and thickets, broken woodland and woodland edge. Eggs laid early May to early September, peak May 20-June 10; possibly double-brooded. Number of eggs 14 (14.10, 10-19; 11). Nests placed on ground in bluestem grassland, brome grass, milo stubble, alfalfa, often at base of bush, small tree or post. *C. v. virginianus* (Linnaeus) occurs in northeastern Kansas, *C. v. taylori* Lincoln in remainder.

Stoddard, H. L. (1931), The bob-white quail: its habits, preservation and increase. Scribners, New York.

* ***Callipepla squamata*** (Vigors): Scaled Quail. Common local resident in southwest in sandy prairie. Breeding records mostly to southwest of Arkansas River and Clark County. *C. s. pallida* Brewster occurs in Kansas.

* ***Phasianus colchicus*** Linnaeus: Ring-necked Pheasant. Common resident in west, uncommon and local in east, chiefly in agricultural land with scattered groves and brush. Introduced by humans; present stock of mixed ancestry.

Delacour, J. (1951), The pheasants of the world. London.

* ***Meleagris gallopavo*** Linnaeus: Turkey. Formerly common resident, particularly east, along floodplain woodland. Recently (since 1958) re-establishing breeding populations along Arkansas River in Cowley County and Medicine Lodge River in Barber County (F. Amsden, personal communication), from stocks presumably native to northeastern Oklahoma. Nesting records for Cowley and Barber counties in 1959. Restocked by humans in several localities in east in 1950s. *M. g. silvestris* Vieillot occurred originally in Kansas; present stock thought to be of same population.

Dalke, P. D., Leopold, A. S., and Spencer, D. L. (1946), The ecology and management of the wild turkey in Missouri. Missouri State Conserv. Comm., Tech. Bull., 1:1-86.

Grus americana (Linnaeus): Whooping Crane. Rare, but regular, transient, line of flight most frequently in east-central part of state, but sight records elsewhere. Occurs chiefly March, April, October.

Allen, R. P. (1952), The whooping crane. Nat. Aud. Soc. Res. Rept. No. 3.

Grus canadensis (Linnaeus): Sandhill Crane. Common transient in west, rare in east, over and in open fields. Occurs most frequently March, April, September, October. *G. c. canadensis* (Linnaeus) and *G. c. tabida* (Peters) occur in Kansas; relative status unknown.

Walkinshaw, L. H. (1942), The sandhill cranes. Bull. Cranbrook Inst. Sci., 29:x+202 pp.

* *Rallus elegans* Audubon: King Rail. Transient and locally common summer resident, rare winter resident, in marshland. Occurs northeast April 7-November 25; specimens taken late December in Miami and Meade counties. Eggs laid first of May to late June, single-brooded. Number of eggs about 8; one clutch of 11 from Cloud County. *R. e. elegans* Audubon occurs in Kansas.

Meanley, B., and Meanley, A. G. (1958), Growth and development of the king rail. Auk, 75:381-386.

* *Rallus limicola* Vieillot: Virginia Rail. Common to uncommon transient and summer resident, in marshland; probably overwinters in south (specimens from Meade County in December and January). Time of migration April, May, September, October. One breeding record, for Morton County, May 24, 1950 (Graber and Graber, 1954:151). *R. l. limicola* Vieillot occurs in Kansas.

Pospichal, L. B., and Marshall, W. H. (1954), A field study of sora rail and Virginia rail in central Minnesota. The Flicker, 26:2-32.

* *Porzana carolina* (Linnaeus): Sora. Common transient, uncommon summer resident, in marshland; probably overwinters in south. Present northeast April 11 to October 12. Nesting records only for Miami and Finney counties (Tordoff, 1956:322).

Walkinshaw, L. H. (1940), Summer life of the sora rail. Auk, 57:153-168.

Coturnicops noveboracensis (Gmelin): Yellow Rail. Uncommon to rare transient in east, in marshlands. Recorded in April and October. *C. n. noveboracensis* (Gmelin) occurs in Kansas.

* *Laterallus jamaicensis* (Gmelin): Black Rail. Uncommon or rare local summer resident, in marshlands. Recorded breeding in Riley, Franklin, and Finney counties. Eggs laid in June. Number of eggs 8 (8.25, 6-10; 4). *L. j. jamaicensis* (Gmelin) occurs in Kansas.

Porphyrula martinica (Linnaeus): Purple Gallinule. Rare sum-

mer visitant in eastern part, in marshlands. Five specimens, April and June, from Douglas, Riley and Sedgwick counties.

* *Gallinula chloropus* (Linnaeus): Common Gallinule. Rare summer resident, chiefly east, in marshlands. Present April through September. Breeding records in May and June for Douglas and Coffey counties. *G. c. cachinnans* Bangs occurs in Kansas.

Howard, H. E. (1940), A waterhen's worlds. Cambridge Univ. Press, London.

* *Fulica americana* Gmelin: American Coot. Common transient, uncommon summer resident, and local winter resident on ponds, lakes, and marshes. Rarely seen January-February. Eggs laid mid-May to first week in July, peak May 10-20; single-brooded. Number of eggs about 7 (7.00, 5-12; 9). Nests made of marsh vegetation (*Scirpus*), floating on water. *F. a. americana* Gmelin occurs in Kansas.

Gullion, G. W. (1952), The displays and calls of the American coot. Wilson Bull., 64:83-97.

Charadrius hiaticula Linnaeus: Semipalmated Plover. Uncommon to common transient on open, wet ground, frequently near ponds or marshes. Present northeast March 14-June 8, July 19-October 1. *C. h. semipalmatus* Bonaparte occurs in Kansas.

Laven, H. (1940), Beiträge zur Biologie des Sandregenpfeifers (*Charadrius hiaticula*). Jour. für Ornith., 88:183-288.

Charadrius melodus Ord: Piping Plover. Uncommon to rare transient, possible summer resident north-central sector, on sandy, wet ground and saline flats. Present northeast mid-March to late May, early August to early October. Eight specimens, one of which (KU 15492) taken July 16, 1925, at Little Salt Marsh, Stafford County. *C. m. circumcinctus* (Ridgway) occurs in Kansas.

Wilcox, L. (1939), Notes on the life history of the piping plover. Birds of Long Island, No. 1:3-13.

* *Charadrius alexandrinus* Linnaeus: Snowy Plover. Uncommon to common summer resident on saline flats of central and south-central Kansas, vagrant elsewhere. Eggs laid June 1-20, peak probably June 1-10; single-brooded. Number of eggs 3, laid on bare sand. *C. a. tenuirostris* (Lawrence) occurs in Kansas.

* *Charadrius vociferus* Linnaeus: Killdeer. Common transient and summer resident, uncommon winter resident south, on or near wet ground, typically near ponds, streams or marshes. Present northeast February-December 3; December 28 in Cowley County. Eggs laid first week in April to late June, first peak about April 10-20; double-brooded. Number of eggs ordinarily 4, placed on

bare gravel, extremely close-cropped pasture, plowed soil, and like sites. *C. v. vociferus* Linnaeus occurs in Kansas.

Davis, E. (1943), A study of wild and hand reared killdeers. Wilson Bull., 55:223-234.

* ***Eupoda montana*** (Townsend): Mountain Plover. Local summer resident in west, on plains, rolling hills with short grass, not necessarily near wet ground. One breeding record: partly downy young (KU 5512, 5513), Greeley County, June 21, 1911.

Pluvialis dominica (Müller): American Golden Plover. Uncommon, regular transient, at least in east, on open ground usually near ponds and marshes. Present northeast March 29-June 9, September 29-October 30. *P. d. dominica* (Müller) occurs in Kansas.

Squatarola squatarola (Linnaeus): Black-bellied Plover. Uncommon to common transient, on open ground usually near ponds or marshes. Present northeast April 30-June 5, August 9-November 10.

Arenaria interpres (Linnaeus): Ruddy Turnstone. Rare transient, on sandy and pebbly lake and river margins. Four specimens, several sight records, all Cloud County east, in May, August, September, October. *A. i. morinella* (Linnaeus) occurs in Kansas.

* ***Philohela minor*** (Gmelin): American Woodcock. Uncommon transient in state, rare summer resident in east, on wet ground in and around woodland. Present east March 17 (Horace Hays, personal communication)-December 5. Nested near Neosho Falls, Woodson County, with quarter-grown young seen May 25, 1874 (Goss, 1891:159), and probably in northeastern Douglas County in 1958 (Fitch, 1958:194).

Pettingill, O. S. (1936), The American woodcock, *Philohela minor* (Gmelin). Mem. Boston Soc. Nat. Hist., 9:169-391.

Capella gallinago (Linnaeus). Common Snipe. Common transient, uncommon winter resident, in wet meadows and marshland. Present northeast chiefly March 16-May 28, August 20-December 5. *C. g. delicata* (Ord) occurs in Kansas.

* ***Numenius americanus*** Bechstein: Long-billed Curlew. Transient and uncommon summer resident in west, uncommon transient in east, in open country; frequently near wet places in passage. Present northeast April 4-May 18, September. Two breeding records: eggs laid first part of May, 1 mile from Spring Creek, Morton County, 1927; 4 eggs, June, 1955, 7 miles northwest Johnson, Stanton County. *N. a. americanus* Bechstein occurs in Kansas.

[*Numenius phaeopus* (Linnaeus): Whimbrel. Goss (1891:97) reported the species as a rare migrant in spring. Sight record from Iatan marsh, Atchison County (Tordoff, 1956:324), May 16, 1948; no specimen from Kansas.]

Numenius borealis (Forster): Eskimo Curlew. Species now nearly extinct, but formerly common transient in east. One specimen record: Douglas County, May 6, 1873 (KU 6951).

* *Bartramia longicauda* (Bechstein): Upland Plover. Common transient, common local summer resident, most numerous in Flint Hills, in grassland. Present northeast April 6-October 6. Eggs laid late April to early June, peak May 1-10; single brooded. Number of eggs ordinarily 4. Nests placed on ground, in and under grasses (particularly bluestems).

* *Actitis macularia* (Linnaeus): Spotted Sandpiper. Common transient and summer resident, on wet ground and banks of rivers and streams, particularly where gravelly. Present northeast March 30-October 10. Breeding records northeast only, eggs laid May. Nests placed on ground, near water or in grassland.

Nelson, T. (1930), Growth rate of the spotted sandpiper chick with notes on nesting habits. Bird-Banding, 1:1-13.

Tringa solitaria Wilson: Solitary Sandpiper. Common transient, found in wet places near water edge. Present northeast April 16-May 24, July 9-October 5, occasional in June. *T. s. solitaria* Wilson occurs in eastern Kansas, *T. s. cinnamomea* (Brewster) occurs in west.

Catoptrophorus semipalmatus (Gmelin): Willet. Uncommon to common transient, found in meadowland or near water. Present northeast March 28-June 9, July 9-October 12. *C. s. inornatus* (Brewster) occurs in Kansas.

Vogt, W. (1938), Preliminary notes on the behavior and ecology of the eastern willet. Proc. Linn. Soc. New York, 49:8-42.

Totanus melanoleucus (Gmelin): Greater Yellowlegs. Common transient, found on wet ground and water edge. Present northeast March 21-November 6, but sporadic in mid-summer.

Totanus flavipes (Gmelin): Lesser Yellowlegs. Common transient, found on wet ground and water edge. Present northeast March 25-November 8, but sporadic in mid-summer.

Calidris canutus (Linnaeus): Knot. Rare transient, on sandy banks near water. One specimen record: Hamilton, Greenwood County, September 19, 1911 (Tordoff, 1956:325). *C. c. rufa* (Wilson) occurs in Kansas.

Erolia melanotos (Vieillot): Pectoral Sandpiper. Common transient, on wet ground and shallow water. Present northeast March 14-June 9, July 24-November 3, occasionally in mid-summer.

Pitelka, F. A. (1959), Numbers, feeding schedule, and territoriality in pectoral sandpipers of northern Alaska. Condor, 61:233-264.

Erolia fuscicollis (Vieillot): White-rumped Sandpiper. Common transient, on wet ground and shallow water. Present northeast April 10-June 19, July 17-September 25, occasionally in mid-summer.

Erolia bairdii (Coues): Baird Sandpiper. Common transient, more numerous in west, on wet ground and shallow water. Present northeast March 24-June 2, July 19-October 17, occasionally in mid-summer.

Erolia minutilla (Vieillot): Least Sandpiper. Common transient, more numerous in east, on wet ground and shallow water. Present northeast April 21-June 2, July 16-October 29, occasionally in mid-summer.

Erolia alpina (Linnaeus): Dunlin. Rare transient in east, on wet ground and shallow water. Present northeast May 8-26, August 19. *E. a. pacifica* (Coues) occurs in Kansas.

Limnodromus griseus (Gmelin): Short-billed Dowitcher. Rare or uncommon transient, status not well known, on wet ground and shallow water. Three specimens (Douglas, Russell, and Sumner counties), taken April, May. *L. g. hendersoni* Rowan occurs in Kansas.

Pitelka, F. A. (1950), Geographic variation and the species problem in the shore-bird genus *Limnodromus*. Univ. California Publ. Zool., 50:1-108.

Limnodromus scolopaceus (Say): Long-billed Dowitcher. Common transient, on wet ground and shallow water. Present northeast March 10-June 2, July 19-October 21, occasionally in mid-summer.

For reference see Short-billed Dowitcher.

Micropalama himantopus (Bonaparte): Stilt Sandpiper. Uncommon to common transient, on wet ground and shallow water. Present northeast April 21-June 19, July 19-October 14, occasionally in mid-summer.

Ereunetes pusillus (Linnaeus): Semipalmated Sandpiper. Common transient, on wet ground and shallow water. Present northeast March 14-June 8, July 21-October 21, occasionally in mid-summer.

Ereunetes mauri Cabanis: Western Sandpiper. Transient, numerous in west, uncommon in east, on wet ground and shallow water.

Present north-central sector April 14-June 8, July 19-October 28, occasionally in mid-summer.

Tryngites subruficollis (Vieillot): Buff-breasted Sandpiper. Uncommon transient, chiefly east, near water and wet ground. Present northeast July 29-September 26, one record for April (Douglas County).

Limosa fedoa (Linnaeus): Marbled Godwit. Rare transient, near water or on wet ground. Records north-central April 16-June 5, and August 20.

Limosa haemastica (Linnaeus): Hudsonian Godwit. Uncommon transient, most numerous in east and central, around water and wet ground. Present in period April 16-May 27; one record August 2.

Crocethia alba (Pallas): Sanderling. Uncommon transient, on sandy places near water. Present northeast May 14-June 1, September 3-October 8; few present Stafford County, July-August.

* *Recurvirostra americana* Gmelin: American Avocet. Transient, uncommon in east, common in west, local summer resident central and west, around marshes and shallow water. Present April 2-November 21. Eggs laid mid-May to mid-June, peak June 1-10; single-brooded. Number of eggs ordinarily 4. Nests built on ground, near water.

Himantopus mexicanus (Müller): Black-necked Stilt. Rare transient, on marshes and around still water. Records from Stafford, Seward, Finney, Kearney, Crawford, Sedgwick, and Cloud counties, April, May, June, July.

Phalaropus fulicarius (Linnaeus): Red Phalarope. Vagrant, on open, shallow water. Two specimens: Lakeview, Douglas County, November 5, 1905 (KU 3778); Ottawa, Franklin County, October 25, 1926 (Gloyd, 1927:107).

* *Steganopus tricolor* Vieillot: Wilson Phalarope. Common transient, local summer resident, on shallow water and marshes. Present northeast April 7-June 11, July 27-October 7; October 14 in Cowley County. One nesting record: downy young, Cheyenne Bottoms, Barton County, June 26, 1954 (Andrews and Stephens, 1954:30).

Lobipes lobatus (Linnaeus): Northern Phalarope. Rare transient, on shallow water. Present May 8-28, August 30-October 18. Two specimens: Fort Wallace, Wallace County, May 25, 1883 (Goss collection), 3 miles east Lawrence, Douglas County, May 28, 1955 (KU 32560).

Tinbergen, N. (1935), . . . The behavior of the red-necked phalarope (*Phalaropus lobatus* L.) in spring. Ardea, 24:1-42.

Stercorarius pomarinus (Temminck): Pomarine Jaeger. Vagrant. One record (KU 6967): Kansas River near Lawrence, Douglas County, October 10, 1898.

Pitelka, F. A., Tomich, P. Q., and Treichel, G. W. (1955), Breeding behavior of jaegers and owls near Barrow, Alaska. Condor, 57:3-16.

Stercorarius longicaudus Vieillot: Long-tailed Jaeger. Vagrant. One record (KU 32610): Cheyenne Bottoms, Barton County, June 23, 1955.

[***Larus hyperboreus*** Gunnerus: Glaucous Gull. Sight records at Lake Shawnee, Shawnee County, January 27, 1951 (Tordoff, 1956:327), no specimen taken in Kansas.]

Larus argentatus Pontoppidan: Herring Gull. Uncommon transient, usually near lakes and rivers. Present northeast February 14-May 11, September 2-November 22; few present December, January, February. *L. a. smithsonianus* (Coues) occurs in Kansas.

Tinbergen, N. (1953), The herring gull's world. Collins, London.

Larus californicus Lawrence: California Gull. Vagrant. One specimen (location unknown) taken by Goss (1891:21) Arkansas River, Reno County, October 20, 1880.

Johnston, D. W. (1956), The annual reproductive cycle of the California gull. Condor, 58:134-162, 206-221.

Larus delawarensis Ord: Ring-billed Gull. Locally common transient, rare winter resident, near water and tilled fields. Most occur March 1-May 26, August 1-November 18.

For reference see Franklin Gull.

Larus atricilla Linnaeus: Laughing Gull. Vagrant. One specimen (in collection of Richard H. Schmidt) 3 miles east, 2½ miles south Canton, in Marion County, May 15, 1933.

Larus pipixcan Wagler: Franklin Gull. Common transient, around water and tilled fields. Present northeast April 1-June 30, July 16-December 15, occasionally in mid-summer.

Moynihan, M. (1959), Notes on the behavior of some North American gulls. Pt. IV. Behaviour, 14:214-239.

Larus philadelphia (Ord): Bonaparte Gull. Rare transient, at least in east. Occurs within the periods March-May, August-November.

[***Rissa tridactyla*** (Linnaeus): Black-legged Kittiwake. The species has been seen by reliable observers on Lake Shawnee, Shawnee County, October 20, 1951; no specimen taken in Kansas.]

Coulson, J. C., and White, E. (1956), A study of colonies of the kittiwake *Rissa tridactyla* (L.) Ibis, 98:63-79.

Xema sabini (Sabine): Sabine Gull. Rare transient, chiefly around lakes. Subadult birds in September, October, in Allen,

Greenwood, Shawnee and Barton counties. *X. s. sabini* (Sabine) occurs in Kansas.

Sterna forsteri Nuttall: Forster Tern. Locally common transient, Barton and Stafford counties eastward, chiefly along rivers and lakes. Present northeast April 9-June 15, July 21-November 1.

Sterna hirundo Linnaeus: Common Tern. Rare transient, along rivers and lakes. Two specimens: Anderson County (May 11, 1878) and Greenwood County (September 2, 1912). Present northeast March 21-June 1, September 14-October 8. *S. h. hirundo* Linnaeus occurs in Kansas.

Palmer, R. S. (1941), A behavior study of the common tern (*Sterna hirundo hirundo* L.). Proc. Boston Soc. Nat. Hist., 42:1-119.

* *Sterna albifrons* Pallas: Least Tern. Uncommon transient, local summer resident, along rivers, on marshes. Present northeast May 14-August 27. Breeding records from Stafford, Meade, Hamilton counties. Eggs laid late May to late June, peak June 1-10; single-brooded. Number of eggs 2-4. Nests on bare ground, usually near water. *S. a. atholassos* Burleigh and Lowery occurs in Kansas.

Hardy, J. W. (1957), The least tern in the Mississippi Valley. Publ. Mus. Michigan St. Univ. Biol. Ser., 1:1-60.

Hydroprogne caspia (Pallas): Caspian Tern. Uncommon to rare transient, on rivers and lakes. Many sight records, one specimen (KU 17147): Douglas County, September 27, 1928.

Chlidonias niger (Linnaeus): Black Tern. Common transient, regular summer resident west and central (but no breeding record), on lakes, marshes and rivers. Present northeast May 3-September 30. *C. n. surinamensis* (Gmelin) occurs in Kansas.

Cuthbert, N. L. (1954), A nesting study of the black tern in Michigan. Auk, 71:36-63.

* *Columbia livia* Gmelin: Rock Dove. Introduced; feral populations locally common around towns and farms, and cliffsides in west. Eggs laid mid-January to late December, peak April 1-10; double-brooded. Number of eggs ordinarily 2. Nests placed in crevices and ledges in buildings and cliffs, 10 to 60 feet high. Feral stock of mixed genetic heritage.

Whitman, C. O. (1919), The behavior of pigeons. Carnegie Inst. Washington, Publ. 257.

* *Zenaidura macroura* (Linnaeus): Mourning Dove. Common transient and summer resident, uncommon winter resident, in open and edge habitats. Present northeast in greatest numbers March-November. Eggs laid late March to early September, peak May 10-20; double-brooded. Number of eggs ordinarily 2. Nests placed

in elms (15 feet), osage-orange (5 feet), hackberry (12 feet), exotic conifers (6 feet), many other kinds, and on ground. *Z. m. marginella* (Woodhouse) occurs throughout Kansas, *Z. m. carolinensis* (Linnaeus) occurs in extreme east.

McClure, H. E. (1943), Ecology and management of the mourning dove in Cass County, Iowa. Bull. 310, Iowa St. Coll. Agric. Exp. Sta., Ames.

* ***Ectopistes migratorius*** (Linnaeus): Passenger Pigeon. Formerly uncommon or irregular transient and summer resident in east, now extinct. Two specimens (Goss Collection) from Neosho Falls, Woodson County, April 14, 1876.

Schorger, A. W. (1955), The passenger pigeon . . . Univ. Wisconsin Press, Madison. xiii+424 pp.

Columbigallina passerina (Linnaeus): Ground Dove. Vagrant. One specimen (KU 36900): near Garnett, Anderson County, November 28, 1958 (Johnston, 1959*b*); sight record, Pottawatomie County, November 11, 1954. *C. p. passerina* (Linnaeus) occurs in Kansas.

Nicholson, D. J. (1937), Notes on the breeding of the ground dove in Florida. Wilson Bull., 49:101-114.

Scardafella inca (Lesson): Inca Dove. Vagrant. One specimen (KU 33241): Meade State Game Farm, Meade County, March 26, 1957 (Hardy, 1958); sight records from Harvey County (November-January) and Shawnee County (June).

Johnston, R. F. (1960), Behavior of the Inca dove. Condor, 62:7-24.

* ***Conuropsis carolinensis*** (Linnaeus): Carolina Paroquet. Formerly common resident, chiefly east, now extinct. Goss (1891:317) reported nesting of small flock near Neosho Falls, Woodson County, in 1858. One specimen (Acc. T-391, Emporia State Teachers College collection): Emporia, Lyon County, around 1890. One bird reported shot near Potter, Atchison County, in 1904 (Widmann, 1907:116). *C. c. ludovicianus* (Gmelin) occurred in Kansas.

* ***Coccyzus americanus*** (Linnaeus): Yellow-billed Cuckoo. Common transient and summer resident, in heavy riparian shrubbery and second-growth. Present northeast April 29-October 12. Eggs laid late May to early September, peak June 5-15; double-brooded. Number of eggs Doniphan County 3 (3.31, 2-5; 16), Cloud County 3 (2.73, 2-4; 15). Nests placed about 6 feet high (one 20 feet in oak), on horizontal branches in elm, dogwood, willow, oak, osage orange, many others, in heavy cover. *C. a. americanus* (Linnaeus) occurs in Kansas.

* ***Coccyzus erythropthalmus*** (Wilson): Black-billed Cuckoo. Uncommon transient and summer resident, in heavy riparian shrubbery and second-growth. Present northeast May 14-October 7.

Eggs laid late May to mid-August, peak June 1-10; probably double-brooded. Number of eggs 3 (2.57, 2-3; 7). Nests placed about 5 feet high on horizontal branches in plum, elm, and the like.

Spencer, Q. R. (1943), Nesting habits of the black-billed cuckoo. Wilson Bull., 55:11-22.

* *Geococcyx californianus* (Lesson): Roadrunner. Uncommon to common resident in south, less numerous southeast. Eggs laid early April to mid-July (records from Cowley and Sumner counties). Number of eggs about 5 (4.50, 3-6; 4). Nests placed on ground under shrubby cover, occasionally low in bushes.

Bryant, H. C. (1916), Habits and food of the roadrunner in California. Univ. California Publ. Zool., 17:21-58.

Crotophaga sulcirostris Swainson: Groove-billed Ani. Vagrant. Three records: Crawford County (KU 31948), Marshall County (KU 31951), Lyon County (Tordoff, 1956:330). The two dated occurrences are for October 28 and November 1. *C. s. sulcirostris* Swainson occurs in Kansas.

Davis, D. E. (1942), The phylogeny of social nesting habits in the Crotophaginae. Quart. Rev. Biol., 17:115-134.

**Tyto alba* (Scopoli): Barn Owl. Uncommon resident in open woodland, characteristically near farmsteads. Records infrequent November through February. Eggs laid chiefly in April, 2-6 in number. Nests placed in niches in dwellings, hollow trees, river banks. *T. a. pratincola* Bonaparte occurs in Kansas.

Stewart, P. E. (1952), Dispersal, breeding behavior and longevity of banded barn owls in North America. Auk, 69:227-245.

* *Otus asio* (Linnaeus): Screech Owl. Common resident, in woodland and open woodland. Eggs laid April and May. Nests placed in holes in trees, five to 20 feet high. *O. a. naevius* (Gmelin) occurs in northeastern Kansas, *O. a. hasbroucki* Ridgway in south-central, *O. a. aikeni* (Brewster) and *O. a. swenki* Oberholser occur in west; status of each imperfectly known.

Allen, A. A. (1924), A contribution to the life history and economic status of the screech owl (*Otus asio*). Auk, 41:1-16.

* *Bubo virginianus* (Gmelin): Great Horned Owl. Common resident, in forest, woodland, open woodland, open country with cliffs. Eggs laid mid-January to early March, peak February 10-20; single-brooded. Number of eggs 2 (2.40, 2-3; 18). Nests are frequently hawk and crow nests, about 30 feet high in cottonwood, elm, osage-orange, hackberry; on cliffs and (rarely) buildings little nest is made. *B. v. virginianus* (Gmelin) occurs in eastern Kansas. *B. v. occidentalis* Stone occurs in western Kansas.

Orians, G., and Kuhlman, F. (1956), Red-tailed hawk and horned owl populations in Wisconsin. Condor, 58:371-385.

Nyctea scandiaca (Linnaeus): Snowy owl. Rare winter visitant, in open country. Occurrence tends to be cyclic; notable in winters of 1945-46, 1949-50, 1954-55, 1957-58.

Watson, A. (1957), The behavior, breeding, and food-ecology of the snowy owl *Nyctea scandiaca*. Ibis, 99:419-462.

* *Speotyto cunicularia* (Molina): Burrowing Owl. Uncommon to common summer resident in west, uncommon transient in east, in open country. Present March 22-November 14. Eggs laid from mid-April to early July, peak May 10-20; probably not double-brooded. Number of eggs around 7. Nests in chambers of burrows in earth, particularly (in Kansas) those of prairie dogs (*Cynomys ludovicianus*). *S. c. hypugea* (Bonaparte) occurs in Kansas.

* *Strix varia* Barton: Barred Owl. Locally common resident in east, status in west unknown. No information on breeding season in Kansas. *S. v. varia* Barton occurs throughout Kansas, *S. v. georgica* Latham in southeast.

* *Asio otus* (Linnaeus): Long-eared Owl. Uncommon summer resident, uncommon to common transient and winter resident, in woodland with heavy daytime cover. Season of greatest abundance February-April. Eggs laid March; single-brooded. Number of eggs about 5. Nests frequently in old hawk and crow nests. *A. o. wilsonianus* (Lesson) occurs in Kansas.

For reference see Short-eared Owl.

* *Asio flammeus* (Pontoppidan): Short-eared Owl. Rare to uncommon resident, uncommon to common winter resident, in open country with tall grasses, scattered scrubs and thickets. Nesting records from Bourbon, Woodson, Republic, and Marshall counties. *A. f. flammeus* (Pontoppidan) occurs in Kansas.

Errington, P. L. (1932), Food habits of southern Wisconsin captors. I. Owls. Condor, 34:176-186.

* *Aegolius acadicus* (Gmelin): Saw-whet Owl. Rare resident, more numerous in winter, in woodland and edge. One nesting record: young birds attended by adults, summer of 1951, Wyandotte County (Tordoff, 1956:331). *A. a. acadicus* (Gmelin) occurs in Kansas.

Santee, R., and Granfield, W. (1939), Behavior of the saw-whet owl on its nesting grounds. Condor, 41:3-9.

* *Caprimulgus carolinensis* Gmelin: Chuck-will's-widow. Locally common summer resident, west at least to Shawnee and Stafford counties, in and around woodland. Present April 20 (Eunice Dingus, pers. comm.) to early October, but one December 6 (Fitch, 1958:208). Eggs laid in May, peak May 1-10; single-

brooded. Number of eggs ordinarily 2. Nests on ground, usually on heavy leaf-litter.

* ***Caprimulgus vociferus*** Wilson: Whip-poor-will. Local but common summer resident, chiefly in east, in and around woodland. Present northeast April 6-October 11. Eggs laid in May and June; single-brooded. Number of eggs ordinarily 2. Nests on ground, on heavy leaf-litter, reported from Doniphan and Douglas counties. *C. v. vociferus* Wilson occurs in Kansas.

Raynor, G. S. (1941), The nesting habits of the whip-poor-will. Bird-Banding, 12:98-103.

* ***Phalaenoptilus nuttallii*** (Audubon): Poor-will. Common summer resident in west, rare in east to Leavenworth County, in dry, rocky country with scattering scrubs or ravines with mixed xerophytic cover. Present north-central sector April 12-September 21. *P. n. nuttallii* (Audubon) occurs in Kansas.

Marshall, J. T., Jr. (1955), Hibernation in captive goatsuckers. Condor, 57:129-134.

* ***Chordeiles minor*** (Forster): Common Nighthawk. Common summer resident, nesting on dry, open terrain, foraging over wide variety of habitats. Present northeast April 29-October 18. Eggs laid late May to late June, peak June 10-20; single-brooded. Number of eggs ordinarily 2. Nests on ground, in rocky pasture, gravel banks, occasionally on flat tops of human dwellings. *C. m. minor* (Forster) occurs in northeastern Kansas, *C. m. chapmani* Coues in southeast, *C. m. howelli* Oberholser in west; *C. m. sennetti* Coues transient throughout.

Weller, M. W. (1958), Observations on the incubation behavior of a common nighthawk. Auk, 75:48-59.

* ***Chaetura pelagica*** (Linnaeus): Chimney Swift. Common transient and summer resident in east, uncommon transient in west, around towns. Present northeast April 2-October 11; October 13 in Cowley County. Eggs laid late April to early June, peak about May 15-25; single-brooded. Nests placed on vertical surfaces, chiefly inside walls of chimneys, occasionally in buildings or tree hollows.

Fischer, R. E. (1958), The breeding biology of the chimney swift, *Chaetura pelagica*, (Linnaeus). New York State Mus. Bull., 368:1-141.

* ***Archilochus colubris*** (Linnaeus): Ruby-throated Hummingbird. Common transient and summer resident in east, rare in west, around sites having flowers. Present northeast April 20-October 2. Eggs laid early June to early July, peak around June 20; single-brooded. Number of eggs ordinarily 2. Nests placed on outer

branches (pendant surface or fork) of oak, hickory, ironwood, about 17 feet high.

Pitelka, F. A. (1942), Territoriality and related problems in North American hummingbirds. Condor, 44:189-204.

Stellula calliope (Gould): Calliope Hummingbird. Rare transient in west. One record: 6 miles east Kansas highway 27, 8 miles south Richfield, Morton County, September 3, 1952 (Graber, 1954:149).

For reference, see Ruby-throated Hummingbird.

* *Megaceryle alcyon* (Linnaeus): Belted Kingfisher. Common summer resident, uncommon winter resident, near streams, rivers, ponds and lakes. Present in greatest numbers northeast March through November. Eggs laid April and May; probably single-brooded. Nests in excavations in sandy banks. *M. a. alcyon* (Linnaeus) occurs in Kansas.

Salyer, J. C., II, and Lagler, K. F. (1949), The eastern belted kingfisher in relation to fish management. Trans. Am. Fish Soc., 76:97-117.

* *Colaptes auratus* (Linnaeus): Yellow-shafted Flicker. Common resident in east, meeting, hybridizing with, partly replaced by Red-shafted Flicker westward, in woodland edge, open woodland, riverbottom timber. Eggs laid mid-April to early June, peak May 1-10; single-brooded. Number of eggs about 5 (3-7). Nests in stumps, dead limbs of willow, cottonwood, mulberry, about 6 feet high. *C. a. auratus* (Linnaeus) occurs in southeastern Kansas, *C. a. luteus* Bangs in remainder; *C. a. borealis* Ridgway in northeast in winter.

Sherman, A. R. (1910), At the sign of the northern flicker. Wilson Bull., 22:135-171.

* *Colaptes cafer* (Gmelin): Red-shafted Flicker. Common resident in west, meeting, hybridizing with, largely replaced by Yellow-shafted Flicker eastward, in open woodland and riverbottom timber. Populations shift eastward in winter. No information available on breeding season; known to be similar to that of Yellow-shafted Flicker. *C. c. collaris* Vigors occurs in Kansas.

* *Dryocopos pileatus* (Linnaeus): Pileated Woodpecker. Rare and local resident in heavy timber in east, formerly common. Has been seen recently in Leavenworth, Douglas, Wyandotte, Miami, Linn, Neosho, Cherokee, Chautauqua, and Sumner counties. Nesting records recently only from Linn and Cherokee counties, where eggs laid in April; single-brooded. Number of eggs 3-4. Nests 45-60 feet high in large riverbottom trees, as cottonwood, pinoak.

D. p. abieticola (Bangs) occurs in northeastern Kansas, *D. p. pileatus* (Linnaeus) in southeast.

Hoyt, S. F. (1957), The ecology of the pileated woodpecker. Ecology, 38:246-256.

* ***Centurus carolinus*** (Linnaeus): Red-bellied Woodpecker. Common resident in east, scattered records in west, in woodland. Eggs laid early March to late June, peak April 20-30; probably double-brooded. Number of eggs about 5. Nests about 25 feet high (9-60 feet) in elm, ash, cottonwood, hickory, willow. *C. c. zebra* (Boddaert) occurs in Kansas.

Selander, R. K., and Giller, D. R. (1959), Interspecific relations of woodpeckers in Texas. Wilson Bull., 71:107-124.

* ***Melanerpes erythrocephalus*** (Linnaeus): Red-headed Woodpecker. Common summer resident and transient in state, uncommon winter resident in east, in woodland. Greatest abundance northeast late April-early November. Eggs laid early May to early August, peak June 1-10; probably double-brooded. Number of eggs about 5. Nests placed about 25 feet high in cottonwood, willow, elm. *M. e. erythrocephalus* (Linnaeus) occurs in eastern Kansas, *M. e. caurinus* Brodkorb in west.

Kilham, L. (1958), Territorial behavior of wintering red-headed woodpeckers. Wilson Bull., 70:347-358.

Asyndesmus lewis (Gray): Lewis Woodpecker. Probably rare resident in southwest, in open woodland; status uncertain. Vagrant in east.

Sphyrapicus varius (Linnaeus): Yellow-bellied Sapsucker. Uncommon transient and winter resident, in open woodland. Present northeast November 14-April 15. *S. v. varius* (Linnaeus) occurs in eastern Kansas, *S. v. nuchalis* Baird in west.

Howell, T. R. (1952), Natural history and differentiation in the yellow-bellied sapsucker. Condor, 54:237-282.

[***Sphyrapicus thyroideus*** (Cassin): Williamson Sapsucker. Adult male seen Concordia, Cloud County, by Dr. J. M. Porter, April 4, 1935; no specimen from Kansas.]

* ***Dendrocopos villosus*** (Linnaeus): Hairy Woodpecker. Common resident in woodland. Eggs laid late March to late May, peak seemingly May 1-10; single-brooded. Number of eggs around 4. Nests placed about 15 feet high in many kinds of trees. *D. v. villosus* (Linnaeus) occurs in Kansas.

* ***Dendrocopos pubescens*** (Linnaeus): Downy Woodpecker. Common resident, in woodland. Eggs laid mid-April to early June, peak May 1-10; single-brooded. Number of eggs about 5. Nests

placed 15 to 30 feet high in willow, ash, honey locust, apple. *D. p. pubescens* (Linnaeus) occurs in southeastern Kansas, *D. p. medianus* (Swainson) in remainder.

Dendrocopos scalaris (Wagler): Ladder-backed Woodpecker. Common resident in open woodland and scrubland in Morton County; no nest found yet in Kansas. *D. s. symplectus* (Oberholser) occurs in Kansas.

* ***Tyrannus tyrannus*** (Linnaeus): Eastern Kingbird. Common transient and summer resident, most numerous in east, in open country grown to scattering trees, and woodland edge. Present northeast April 14-September 24. Eggs laid late May to late July, peak June 5-15; single-brooded. Number of eggs 3 (3.14, 2-4; 7). Nests placed about 12 feet high, chiefly in canopy of deciduous trees, less often in conifers.

* ***Tyrannus verticalis*** (Say): Western Kingbird. Common transient and summer resident, chiefly west of Flint Hills, but locally regular farther east (Lawrence), in open country with scattering trees, and woodland edge. Present northeast April 23-September 26. Eggs laid mid-May to late July, peak June 10-20; single-brooded. Number of eggs 4 (3.75, 3-4; 4). Nests placed about 18 feet high, in canopy of deciduous trees, rarely on poles.

Tyrannus vociferans Swainson: Cassin Kingbird. Transient and summer resident in west, east to Finney County. One specimen: 7½ miles north Elkhart, Morton County, May 26, 1950 (Graber and Graber 1954:156). No nesting record for Kansas. *T. v. vociferans* Swainson occurs in Kansas.

* ***Muscivora forficata*** (Gmelin): Scissor-tailed Flycatcher. Common summer resident, particularly in south and central sectors, rare in northwest, in open country grown to scattering trees. Most stations of breeding occurrence fall within lines connecting Morton County to Cloud County to Neosho County, but the species nests in Nebraska, Iowa, and Missouri. Present in south by April 15, in northeast April 18-October 22; a notable autumnal wanderer. Eggs laid late May to early July; single-brooded. Number of eggs 3 to 4. Nests placed about 14 feet high, on horizontal limbs of deciduous trees and, frequently, power poles.

Fitch, F. W., Jr. (1950), Life history and ecology of the scissor-tailed flycatcher, *Muscivora forficata*. Auk, 67:145-168.

* ***Myiarchus crinitus*** (Linnaeus): Great Crested Flycatcher. Common transient and summer resident, most numerous in east, in woodland and edge. Present northeast April 15-September 21.

Eggs laid mid-May to mid-June; season seemingly notably restricted in time. Number of eggs 4-6. Nests placed in cavities of trees and buildings, 10-20 feet high. *M. c. boreus* Bangs occurs in Kansas.

Gillespie, J. A. (1924), Some nestings of the crested flycatcher. Auk, 41: 41-44.

Myiarchus cinerascens (Lawrence): Ash-throated Flycatcher. Probable summer resident, in open woodland and edge, at least in Morton County. One specimen: 8 miles south Richfield, Morton County, May 7, 1950 (Graber and Graber, 1954:156). *M. c. cinerascens* (Lawrence) occurs in Kansas.

* *Sayornis phoebe* (Latham): Eastern Phoebe. Common transient and summer resident in east, uncommon in west, in woodland edge and riparian groves. Present northeast March 3-October 27. Eggs laid late March to mid-July, peak April 20-30; double-brooded. Number of eggs 4 (4.18, 2-5; 54). Nests placed on flat or vertical or overhanging surfaces on bridges, houses, earthen banks, rocky cliffs; average height 6 feet. Availability of culverts, bridges, buildings in part determines density of breeding populations here. Important host of Brown-headed Cowbird.

Smith, W. P. (1942), Nesting habits of the eastern phoebe. Auk, 59:410-417.

* *Sayornis saya* (Bonaparte): Say Phoebe. Common transient and summer resident, chiefly in west, in open country. Occurs sparingly east to Republic, Cloud (breeding), and Lyon (transient) counties. Nesting records only for May, but probably begins April. Number of eggs 3-5. Nests placed on bridges, houses, rocky cliffs. S. *s. saya* (Bonaparte) breeds in Kansas, S. *s. yukonensis* Bishop is transient.

Empidonax flaviventris (Baird and Baird): Yellow-bellied Flycatcher. Uncommon transient, chiefly in east, in forest and woodland. Present northeast May 24-October 7. One specimen (KU 34185) from west: riparian woods 7½ miles north Elkhart, Morton County, August 5, 1957 (Ford, 1957:15).

Walkinshaw, L. H., and Henry, C. J. (1957), Yellow-bellied flycatcher nesting in Michigan. Auk, 74:293-304.

* *Empidonax virescens* (Vieillot): Acadian Flycatcher. Uncommon summer resident in east, in woodland edge and riparian thickets. Present northeast April 30-September 15. Eggs laid last third of May to mid-June. Number of eggs about 3.

Newman, D. L. (1958), A nesting of the acadian flycatcher. Wilson Bull., 70:130-144.

Empidonax traillii (Audubon): Traill Flycatcher. Uncommon transient, chiefly in woodland edge and riparian thickets. Present northeast April 28-May 19, August 14-September 24. No evidence of breeding in Kansas. *E. t. traillii* (Audubon) occurs in eastern Kansas, *E. t. brewsteri* Oberholser in west.

McCabe, R. A. (1951), The song and song-flight of the alder flycatcher. Wilson Bull., 63:89-98.

Empidonax minimus (Baird and Baird): Least Flycatcher. Common transient, in open woodland and edge. Present northeast April 20-June 4, July 31-September 24. No evidence of breeding in Kansas, but present in summer in various places, as Gove County, July 28, 1921 (Linsdale, 1926*a*).

Davis, D. E. (1959), Observations on territorial behavior of the least flycatcher. Wilson Bull., 71:73-85.

Empidonax oberholseri Phillips: Wright Flycatcher. Rare transient in extreme west. Three specimens, May 8, 12, 1950, 8 miles south Richfield, Morton County (Graber and Graber, 1951:157).

Empidonax difficilis Baird: Western Flycatcher. Rare transient in extreme west. One specimen (KU 31203) on September 5, 1952, 8 miles south Richfield, Morton County; another on September 3, 1952, same locality. *E. d. hellmayri* Brodkorb occurs in Kansas.

* ***Contopus virens*** (Linnaeus): Eastern Wood Pewee. Common transient and summer resident in east, rare in west, in woodland and forest edge. Present northeast April 2-September 23. Eggs laid first week in June to mid-July, strong peak June 10-20; single-brooded. Number of eggs about 4. Nests placed on horizontal branches of mature deciduous trees, about 20 feet high.

Kendeigh, S. C. (1952), Parental care and its evolution in birds. Illinois Biol. Monogr., 22:x+358 pp.

Contopus richardsonii (Swainson): Western Wood Pewee. Common transient and probable summer resident in west, rare transient in east, in woodland and edge. Arrives southwest first week of May. *C. r. richardsonii* (Swainson) occurs in Kansas.

Nuttallornis borealis (Swainson): Olive-sided Flycatcher. Uncommon transient. Favorable habitat includes tall trees, where birds characteristically perch and call. Present northeast April 28-May 30, August 29-October 31.

* ***Eremophila alpestris*** (Linnaeus): Horned Lark. Common transient, winter resident, and resident, in open country having short or cropped vegetation. Eggs laid mid-March to early June; probably double-brooded. Nests placed on ground, under grassy cover. *E. a. praticola* (Henshaw) resident in eastern Kansas, *E. a.*

enthymia (Oberholser) in west; *E. a. hoyti* (Bishop), *E. a. alpestris* (Linnaeus), *E. a. leucolaema* (Coues) in winter.

Pickwell, G. B. (1931), The prairie horned lark. Trans. Acad. Sci. St. Louis, 27:1-153.

* ***Iridoprocne bicolor*** (Vieillot): Tree Swallow. Common transient in east, summer resident in Doniphan County along Missouri River. Present northeast April 5-October 21. Eggs laid late May to mid-June; single-brooded. Number of eggs about 5. Nests placed in abandoned woodpecker diggings in medium-height to tall riparian timber.

Paynter, R. A., Jr. (1954), Interrelations between clutch-size, brood-size, prefledging survival, and weight in Kent Island tree swallows. Bird-Banding, 25:35-58, 102-110, 136-148.

* ***Riparia riparia*** (Linnaeus): Bank Swallow. Common transient and summer resident, wherever cut-banks for sites of nesting colonies allow. Present northeast April 9-September 24. Eggs laid mid-May to early June (but, late replacement nestings occur late as first week in July at Lawrence, Douglas County), strong peak May 20-31; single-brooded. Number of eggs 5 (5.04, 4-6; 22). Tunnels and nesting chambers excavated, with beaks, legs, and wings, in fine, sandy clay for distances of 2½ to 4 feet from bank face. *R. r. riparia* (Linnaeus) occurs in Kansas.

Peterson, A. J. (1955), The breeding cycle in the bank swallow. Wilson Bull., 67:235-286.

* ***Stelgidopteryx ruficollis*** (Vieillot): Rough-winged Swallow. Common transient and summer resident in most habitats. Present northeast March 29-October 21. Colonies ordinarily considerably smaller than those of preceding species; not limited in sites of excavation to broad expanses of cut-bank. Eggs laid mid-May to early June (replacement nestings occur late as last week in June at Concordia, Cloud County), strong peak June 1-10; single-brooded. Number of eggs about 5. Nesting chambers similar to those of preceding species. S. *r. serripennis* (Audubon) occurs in Kansas.

* ***Hirundo rustica*** Linnaeus: Barn Swallow. Common transient and summer resident, in most habitats, chiefly cultivated fields and pasture. Present in south by April 4, in northeast April 6-October 26. Eggs laid early May to late July, first peak May 20-31; double-brooded. Number of eggs 5 (4.93, 3-6; 14). Nests placed on horizontal surfaces on or in buildings, bridges and like; rarely more than 2 or 3 pairs at one site. *H. r. erythrogaster* Boddaert occurs in Kansas.

Purchon, R. D. (1948), The nesting activities of the swallow. Proc. Zool. Soc. London, 118:146-170.

* ***Petrochelidon pyrrhonota*** (Vieillot): Cliff Swallow. Common transient and local summer resident, frequently near water, over cultivated fields and pasture. Present northeast April 14-October 25. Eggs laid late May to late June, peak June 1-10; single-brooded. Number of eggs about 5. Nests plastered on vertical rock faces, bridges, and buildings, 6 to more than 100 feet above ground surface. *P. p. pyrrhonota* (Vieillot) occurs in Kansas.

Mayhew, W. W. (1958), The biology of the cliff swallow in California. Condor, 60:7-37.

* ***Progne subis*** (Linnaeus): Purple Martin. Common transient and summer resident in east, uncommon to rare west of line from Barber to Smith counties. Forages over and in parkland, frequently near water. Present northeast March 5-September 23; forms large, premigratory roosting colonies in August, departs southward beginning late August. Eggs laid mid-May to mid-June, peak June 1-10; single-brooded. Number of eggs 4 (4.12, 3-5; 10). Nests flat mats of mud and sticks, in Kansas almost always in "martin houses" 10-25 feet high. *P. s. subis* (Linnaeus) occurs in Kansas.

Allen, R. W., and Nice, M. M. (1952), A study of the breeding biology of the purple martin (*Progne subis*) Amer. Midl. Nat., 47:606-665.

* ***Cyanocitta cristata*** Linnaeus: Blue Jay. Common transient and resident, less common in west and in winter, in open woodland, woodland, forest and edge. Eggs laid late April to early July, peak May 10-20; double-brooded. Number of eggs 4 (4.08, 3-5; 12). Nests placed 8-35 feet high in forks or crotches of mature deciduous trees. *C. c. bromia* Oberholser occurs in Kansas.

Amadon, D. (1944), The genera of Corvidae and their relationships. Amer. Mus. Nov., no. 1251:1-21.

Cyanocitta stelleri (Gmelin): Steller Jay. Rare winter visitant in southwest, several sight records in recent years, chiefly west on Arkansas River. One specimen (KU 34263): Riley County, date unknown. *C. s. macrolopha* Baird occurs in Kansas.

Pitelka, F. A. (1958), The timing of molt in Steller jays of the Queen Charlotte Islands, British Columbia. Condor, 60:38-49.

Aphelocoma coerulescens (Bosc): Scrub Jay. Irregular winter resident in southwest. Five specimens (KU 20812-15, 21213): 12 miles northeast Elkhart, Morton County, November 8, 10, 14, 1934. Sight records Finney County, January 15, 1955. *A. c. woodhouseii* (Baird) occurs in Kansas.

Amadon, D. (1944), A preliminary life-history study of the Florida jay, *Cyanocitta c. coerulescens*. Amer. Mus. Nov., no. 1252.

Aphelocoma ultramarina (Bonaparte): Mexican Jay. Vagrant. One specimen: near Mt. Jesus, Clark County, March, 1906; identi-

fication supported by L. L. Dyche and A. Wetmore (Keith, 1940: 427). *A. u. arizonae* (Ridgway) occurs in Kansas.

For reference see Blue Jay.

* ***Pica pica*** (Linnaeus): Black-billed Magpie. Common resident in west since about 1925 (Linsdale, 1926), chiefly in open country, resorting to wooded bottomland for cover and nesting, east to Clay County; regular in Republic, Cloud, and Ottawa counties. Eggs laid mid-April to early June, peak perhaps in first week of May. Number of eggs 4-7. Domed nests placed 10-20 feet high in riparian cottonwood, elder, ash. *P. p. hudsonia* (Sabine) occurs in Kansas.

Linsdale, J. M. (1937), The natural history of magpies. Pacific Coast Avif., 25:1-234.

Corvus corax Linnaeus: Common Raven. Formerly occurred on high plains, status unknown, presently thought to be rare winter visitant in west, vagrant in east. One specimen (KU 34264): first-year ♂ ?, Jewell County, date unknown but probably winter. *C. c. sinuatus* Wagler occurs in Kansas.

Harlow, R. C. (1922), The breeding habits of the northern raven in Pennsylvania. Auk, 39:399-410.

* ***Corvus cryptoleucus*** Couch: White-necked Raven. Common summer resident in west, in prairie grassland, woodland edge, and bottomland timber; overwinters locally in southwest. Nests frequently in Finney County, occasionally in Ford County. Brood size 1-7 young; single-brooded.

Selous, S. E. (1942), The white-necked raven in relation to agriculture. U. S. Fish and Wldlf. Serv. Res. Rept., no. 5.

* ***Corvus brachyrhynchos*** Brehm: Common Crow. Common resident, less numerous in west, numbers augmented in central sector in winter by influx from north. Centers of abundance related to agricultural practice, more birds being found in and near old fields and tilled fields than in woodland and pasture (but, all habitats used in east). Eggs laid mid-March to late May, peak April 1-10; single-brooded. Number of eggs 4 (4.16, 3-5; 12). Nests situated about 20 feet high, in oak, cottonwood, elm, sycamore, elder, osage-orange, conifers. *C. b. brachyrhynchos* Brehm occurs in Kansas.

Platt, D. (1956), Food of the crow, *Corvus brachyrhynchos* Brehm, in south-central Kansas. Univ. Kansas Publ., Mus. Nat. Hist., 8:477-498.

Gymnorhinus cyanocephalus Wied: Piñon Jay. Uncommon irregular winter visitant, chiefly in west. Reported in Douglas, Sedgwick, Mitchell, Clark, Finney, and Kearny counties.

Nucifraga columbiana (Wilson): Clark Nutcracker. Uncommon, irregular winter visitant, chiefly in west. Reported from Marshall, Ellis, Lyon, Finney, and Seward counties.

Mewaldt, L. R. (1956), Nesting behavior of the Clark nutcracker. Condor, 58:3-23.

* *Parus atricapillus* Linnaeus: Black-capped Chickadee. Common resident, but rare or absent in summer in southernmost counties, in forest, woodland, and edge; frequently in tall brush near large trees. Eggs laid late March to early June, peak April 20-30; probably single-brooded. Number of eggs 5 (5.42, 4-7; 7). Nests placed 5-20 feet high, in cavities in trees. *P. a. atricapillus* Linnaeus occurs in eastern Kansas, *P. a. septentrionalis* Harris in west.

Odum, E. P. (1941, 1942), Annual cycle of the black-capped chickadee. Auk, 58:314-333; 518-535; 59:499-531.

* *Parus carolinensis* Audubon: Carolina Chickadee. Common resident in southernmost counties, occasional to Greenwood County, in forest, woodland, and edge; characteristically in canopy. Breeding records from Barber and Montgomery counties. Nests placed in cavities in trees. *P. a. atricapilloides* Lunk occurs in Kansas.

* *Parus bicolor* Linnaeus: Tufted Titmouse. Common resident in east, west to Cloud and Barber counties, in forest, woodland and edge. Eggs laid mid-April to early June, peak April 20-30; probably single-brooded. Number of eggs 5 (4.99, 4-5; 4). Nests placed about 15 feet high, in cavities in trees.

Laskey, A. R. (1957), Some tufted titmouse life-history. Bird-Banding, 28:135-145.

* *Sitta carolinensis* Latham: White-breasted Nuthatch. Uncommon resident and winter visitant, most often in oak woodland. Eggs laid mid-April to early May; only four nesting records, all from Douglas county. Nests placed in cavities, ordinarily high in large trees. *S. c. cookei* Oberholser occurs nearly throughout Kansas, *S. c. nelsoni* Mearns in extreme southwest, *S. c. carolinensis* Latham in southeast.

Butts, W. K. (1930, 1931), A study of the chickadee and white-breasted nuthatch by means of marked individuals. Bird-Banding, 1:149-168; 2:1-26, 59-76.

Sitta canadensis Linnaeus: Red-breasted Nuthatch. Uncommon transient and winter resident, chiefly, but not exclusively, in planted conifers. Present northeast September 11-May 6.

Gunderson, A. (1939), Nesting habits of the red-breasted nuthatch. Condor, 41:259-260.

Certhia familiaris Linnaeus: Brown Creeper. Uncommon transient and winter resident, in forest and woodland. Present north-

east September 26-April 19. *C. f. americana* Bonaparte occurs in Kansas.

* ***Troglodytes aedon*** Vieillot: House Wren. Common transient and summer resident, less numerous in west, in woodland and forest edge and heavy brushland. Present northeast April 3 (Hubbard, 1953)-October 13. Eggs laid mid-April to mid-July, peak May 10-20; double-brooded. Nests placed 2-20 feet high in crevices and holes in trees, root tangles, buildings; frequently uses man-made "bird houses." *T. a. parkmanii* Audubon occurs in Kansas.

Kendeigh, S. C. (1941), Territorial and mating behavior of the house wren. Illinois Biol. Monogr., 18:1-120.

Troglodytes troglodytes (Linnaeus): Winter Wren. Uncommon to rare transient and winter resident, in dense forest understory and thickets in ravines. Present northeast October 13-April 18. *T. t. hiemalis* Vieillot occurs in Kansas.

Armstrong, E. A. (1955), The wren. Collins, London.

* ***Thryomanes bewickii*** (Audubon): Bewick Wren. Common resident in south, uncommon to rare northwest, in woodland understory. Populations shift southward in winter. Eggs laid mid-April to early July, peak possibly in late April; double-brooded. Number of eggs 5 (5.00, 5; 5). Nests about 6 feet above ground, most in man-made "bird houses," several in old nests of Barn Swallows, others in crevices in buildings. All nesting records come from rectangular area Johnson County west to Riley County south to Cowley County. *T. b. bewickii* (Audubon) occurs in northeastern Kansas, *T. b. cryptus* Oberholser in remainder.

Miller, E. V. (1941), Behavior of the Bewick wren. Condor, 43:81-99.

* ***Thryothorus ludovicianus*** (Latham): Carolina Wren. Common resident in south, less numerous north and west, in and near woodland edge. Eggs laid mid-April to early August, peak May 1-10; double-brooded. Number of eggs 4 (3.66, 3-5; 6). Nests placed near ground, in niches and holes, on ledges, in road and creek banks, stumps, buildings, bridges. *T. l. ludovicianus* (Latham) occurs in Kansas.

Lasky, A. R. (1948), Some nesting data on the Carolina wren at Nashville, Tennessee. Bird-Banding, 17:101-121.

* ***Telmatodytes palustris*** (Wilson): Long-billed Marsh Wren. Uncommon transient in state, uncommon summer resident in east, rare in winter (south), in and around marshes. Present northeast April 19-October 31. Nesting records only from Doniphan County (Linsdale, 1928:605), where nests usually placed within 2 feet of

water or mud, suspended on several vertical plant stalks or branches. *T. p. dissaëptus* (Bangs) occurs in Kansas.

Welter, W. A. (1935), The natural history of the long-billed marsh wren. Wilson Bull., 47:1-34.

* ***Cistothorus platensis*** (Latham): Short-billed Marsh Wren. Uncommon to rare transient and irregular summer resident in east, in wet meadows. Present northeast April 29-October 25. Breeding records only from Douglas County (4 eggs August 30; Tordoff and Young, 1951) and Coffey County (nest, 2 miles NE LeRoy; W. R. Brecheisen, MS). *C. p. stellaris* (Nauman) occurs in Kansas.

Mousley, W. H. (1934), A study of the home life of the short-billed marsh wren (*Cistothorus stellaris*). Auk, 51:439-445.

* ***Salpinctes obsoletus*** (Say): Rock Wren. Common transient and summer resident in west, in rocky open country and boulder-strewn arroyos. Present April 2 (Logan County) to October 25 (Douglas County). Nests at least in Hamilton, Scott, and Logan counties. *S. o. obsoletus* (Say) occurs in Kansas.

* ***Mimus polyglottos*** (Linnaeus): Mockingbird. Regular resident, in low density in north, in parkland and open country with scattering trees and woodlots. Eggs laid late April to end of July; season characteristically with no marked peak to timing of laying. Probably double-brooded. Number of eggs 3 (3.27, 2-5; 25). Nests placed about 4 feet high, in centers of small trees and bushes. *M. p. polyglottos* (Linnaeus) occurs in eastern Kansas. *M. p. leucopterus* (Vigors) occurs in western Kansas.

Michener, J. R. (1951), Territorial behavior and age competition in a population of mockingbirds at a feeding station. Condor, 53:276-285.

* ***Dumetella carolinensis*** (Linnaeus): Catbird. Common transient and summer resident, in and near forest and woodland edge and established second-growth. Present northeast April 25-November 16. Eggs laid mid-May to late July, peak May 20-31; most individuals single-brooded. Number of eggs 4 (3.20, 2-5; 39). Height of nests around 6 feet (rarely to 19 feet) in great variety of trees and shrubs.

Kendeigh, S. C. (1952), Parental care and its evolution in birds. Illinois Biol. Monogr., 22:x+358pp.

* ***Toxostoma rufum*** (Linnaeus): Brown Thrasher. Common transient and summer resident, rare winter resident, in woodland and forest understory and established second-growth. Present northeast April 10 (for a non-wintering bird)-October 11; occasional birds seen all winter. Eggs laid early May to late July, strong peak May 10-20; probably some birds double-brooded.

Number of eggs 4 (3.63, 2-5; 102). Nests situated 2-15 feet high in osage orange, conifers, elm, honey locust, gooseberry and honeysuckle vines. *T. r. rufum* (Linnaeus) occurs in eastern Kansas, *T. r. longicauda* Baird in west.

Engels, W. L. (1940), Structural adaptations in thrashers (Mimidae: Genus *Toxostoma*) . . . Univ. California Publ. Zool., 42:341-400.

Oreoscoptes montanus (Townsend): Sage Thrasher. Rare transient in west. One sight record (autumn) from Morton County, one (spring) from Kearney County (Tordoff, 1956:339). Four specimens, Finney and Morton counties, September-November (KU 31942-43, 34013-14).

* ***Turdus migratorius*** Linnaeus: Robin. Common transient and summer resident, in open woodland and towns, local winter resident in favorable sites. In northeast numbers largest between March and October. Eggs laid first week of April to mid-July, peak April 20-30; double-brooded. Number of eggs 3 (3.55, 2-5; 47). Nests placed 2 to 30 feet high in forks or crotches of great variety of plants (chiefly elm in northeast), not uncommonly on bridges, buildings, and fences. *T. m. migratorius* Linnaeus occurs in most of Kansas, *T. m. propinquus* Ridgway transient, chiefly in west.

Young, H. (1955), Breeding behavior and nesting of the eastern robin. Amer. Midl. Nat., 53:329-352.

Ixoreus naevius (Gmelin): Varied Thrush. Vagrant. One record: October 17, 1891, Garden City, Finney County (Menke, 1894), present location unknown. *I. n. meruloides* (Swainson), on geographic grounds, occurs in Kansas.

* ***Hylocichla mustelina*** (Gmelin): Wood Thrush. Common transient and summer resident in east, in understory of forest and woodland. Nests at least west to Cloud County, but western limit of range otherwise unknown. Present northeast April 19-October 1. Eggs laid second week of May to early August, peak June 1-10; possibly some individuals double-brooded. Number of eggs 3 (3.44, 3-4; 9). Nests placed about 10 feet high on horizontal limbs of elm, oak, dogwood, willow, linden. Important host of Brown-headed Cowbird.

Brackbill, H. (1958), Nesting behavior of the wood thrush. Wilson Bull., 70:70-89.

Hylocichla guttata (Pallas): Hermit Thrush. Uncommon transient in state, rare in winter in east, in woodland and forest understory and edge. Seen most frequently March-May. *H. g. faxoni*

Bangs and Penard occurs chiefly in eastern Kansas, *H. g. sequoiensis* (Belding) vagrant in west.

For reference see Swainson Thrush.

Hylocichla ustulata (Nuttall): Swainson Thrush. Common transient, in woodland and forest understory and edge. Present northeast April 23-June 1, September 15-October 7. *H. u. swainsoni* (Tschudi) occurs in Kansas.

Dilger, W. C. (1956), Hostile behavior and reproductive isolating mechanisms in the avian genera *Catharus* and *Hylocichla*. Auk, 73:313-353.

Hylocichla minima (Lafresnaye): Gray-cheeked Thrush. Uncommon transient in east, probably does not occur in west, in woodland and forest understory and edge. Occurs northeast April 11-May 20, not yet detected in autumn. *H. m. minima* (Lafresnaye) occurs in Kansas.

Wallace, G. J. (1939), Bicknell's thrush, its habits, distribution and life history. Proc. Boston Soc. Nat. Hist., 41, no. 6.

Hylocichla fuscescens (Stephens): Veery. Rare to uncommon transient, more numerous in west, in woodland understory. Present northeast May 5-19, September 8-28. *H. f. salicicola* Ridgway occurs in Kansas.

* ***Sialia sialis*** (Linnaeus): Eastern Bluebird. Common resident and transient, in open country with scattered trees and open woodland edge. Eggs laid early April to mid-July, peaks April 20-30, June 1-10; double-brooded. Number of eggs 5 (4.70, 3-6; 17). Nests placed in holes in trees (8 feet high), in posts and stumps (5 feet high), and in "bird houses" (4 feet high). S. *s. sialis* (Linnaeus) occurs in Kansas.

Thomas, R. H. (1946), A study of the eastern bluebird in Arkansas. Wilson Bull., 58:143-183.

Sialia currucoides (Bechstein): Mountain Bluebird. Common transient and winter resident in west, in open country with scattered trees. Present regularly in low numbers east to Cloud County, November-March, irregularly to Douglas and Anderson counties. Possible breeding record from Hamilton County: juvenal ♀ (KU 5900), northwest of Coolidge, June 20, 1911.

Haecker, F. W. (1948), A nesting study of the mountain bluebird in Wyoming. Condor, 50:216-219.

Myadestes townsendi (Audubon): Townsend Solitaire. Uncommon winter resident in west, irregular in east, in parkland and woodland edge. Present northeast September 17-May 15, most frequently December-February. *M. t. townsendi* (Audubon) occurs in Kansas.

* ***Polioptila caerulea*** (Linnaeus): Blue-gray Gnatcatcher. Common transient and summer resident in east, transient in west, breeding status there uncertain, found in brushy woodland and edge. Breeds at least in Barber, Cowley, Riley, Osage, Douglas, Doniphan, and Linn counties. Present in south by March 30, in northeast April 1-September 16. Eggs laid late April to mid-June, peak May 10-20; single-brooded. Number of eggs 4-5. Nests placed on limbs or forks about 18 feet high in hardwood trees. *P. c. caerulea* (Linnaeus) occurs in Kansas.

Nice, M. M. (1932), Observations on the nesting of the Blue-gray gnatcatcher. Condor, 34:18-22.

Regulus satrapa Lichtenstein: Golden-crowned Kinglet. Common transient, uncommon winter resident, in forest and woodland. Present northeast October 8-April 16, most frequent late October-January. *P. s. satrapa* Lichtenstein occurs in Kansas.

Regulus calendula (Linnaeus): Ruby-crowned Kinglet. Common transient, rare winter resident, in woodland edge and second-growth. Present northeast September 8-May 16. *R. c. calendula* (Linnaeus) occurs in Kansas.

Anthus spinoletta (Linnaeus): Water Pipit. Common transient, in open country (grazed pasture, clean-tilled fields, mudflat). Present northeast March 7-May 24, September 21-November 27, occasionally in midwinter (east) and midsummer (Cloud County). *A. s. rubescens* (Tunstall) occurs in Kansas.

Pickwell, G. B. (1947), The American pipit in its arctic-alpine home. Auk, 64:1-14.

Anthus spragueii (Audubon): Sprague Pipit. Transient throughout state, common in Flint Hills, chiefly in bluestem pasture. Present January 20-April 29, September 15-October 13.

Harris, R. D. (1933), Observations on a nest of Sprague's pipit (*Anthus spraguei*). Canadian Field-Nat., 47:91-95.

Bombycilla garrulus (Linnaeus): Bohemian Waxwing. Rare and irregular winter visitant, in woodland and forest edge, perhaps most frequent in exotic conifers (as, in cemeteries). *B. g. pallidiceps* Reichenow occurs in Kansas.

* ***Bombycilla cedrorum*** Vieillot: Cedar Waxwing. Common transient and irregular winter resident throughout state, rare summer resident northeast, in woodland and forest edge. Present (nonbreeding) northeast September 21-June 15. Eggs laid at least mid-June to early July (Wyandotte and Shawnee counties). Number of eggs about 4.

Putnam, L. S. (1949), Life history of the cedar waxwing. Wilson Bull., 61:141-182.

Lanius excubitor Linnaeus: Northern Shrike. Uncommon to rare winter resident, in open country with scattered trees. Present northeast October 5-March 23, most frequently December-January. *L. e. borealis* Vieillot occurs in eastern Kansas, *L. e. invictus* Grinnell in west.

For reference see Loggerhead Shrike.

* ***Lanius ludovicianus*** Linnaeus: Loggerhead Shrike. Common resident and transient, shifting southward in winter, in open country with scattered trees and thickets. Eggs laid first week of April to first week of July, peak April 10-20; single-brooded. Number of eggs 5 (4.75, 4-6; 12). Nests placed 5 to 6 feet high in heavy shrubbery of osage orange, elm and pine saplings, other second-growth. *L. l. migrans* Palmer occurs in eastern Kansas, *L. l. excubitorides* Grinnell in west.

Miller, A. H. (1931), Systematic revision and natural history of the American shrikes (Lanius). Univ. California Publ. Zool., 38:11-242.

* ***Sturnus vulgaris*** Linnaeus: Starling. Common transient and resident since mid-1930s, in urban sites and around farms; forages chiefly on cropped grassland and clean-tilled fields. Eggs laid first week of March to mid-June, peak April 10-20; double-brooded. Number of eggs 4 (4.25, 2-7; 9). Nests placed 8 to 50 feet high in niches in trees and buildings, and in "bird houses." *S. v. vulgaris* Linnaeus occurs in Kansas.

Kessel, B. R. (1957), A study of the breeding biology of the European starling (*Sturnus vulgaris* L.) in North America. Amer. Midl. Nat., 58:257-331.

* ***Vireo atricapilla*** Woodhouse: Black-capped Vireo. Summer resident at least in Comanche County, in oak woodland and edge of scrubland. Goss (1891:531) collected three pairs in mid-May and found a nest under construction May 11, 1885, in southeastern Comanche County. Sight records recently from Riley and Harvey counties (Tordoff, 1956:341).

For reference see White-eyed Vireo.

* ***Vireo griseus*** (Boddaert): White-eyed Vireo. Common transient and summer resident locally in east, in woodland and edge. Present northeast April 23-October 5. Nesting records only from Doniphan County and vicinity of Kansas City, specimens in summer from other northeastern counties. *V. g. noveboracensis* (Gmelin) occurs in Kansas.

Hamilton, T. (1958), Adaptive variation in the Genus *Vireo*. Wilson Bull., 70:307-346.

* ***Vireo bellii*** Audubon: Bell Vireo. Common transient and summer resident, in riparian and second-growth scrub. Present northeast April 14-September 27. Eggs laid early May to early

July, peak June 1-10; single-brooded. Number of eggs 3 (3.25, 3-5; 20). Nests placed about 2½ feet high in osage orange, dogwood, honey locust, elm. Important host of Brown-headed Cowbird. *V. b. belli* Audubon occurs in Kansas.

Pitelka, F. A., and Koestner, E. J. (1942), Breeding behavior of Bell's vireo in Illinois. Wilson Bull., 54:97-106.

* ***Vireo flavifrons*** Vieillot: Yellow-throated Vireo. Uncommon transient and rare local summer resident, in deciduous forest and woodland. Present northeast April 28-October 1. Eggs laid at least in May, in Woodson, Shawnee (Goss, 1891:526) and Douglas (Tordoff, 1956:341) counties. Nests hung 20-30 feet high from horizontal forks in deciduous trees.

For reference see White-eyed Vireo.

Vireo solitarius (Wilson): Solitary Vireo. Uncommon to common transient, in woodland and deciduous forest. Present northeast April 29-May 20, August 29-October 22. *V. s. solitarius* (Wilson) occurs in eastern Kansas, *V. s. plumbeus* Coues in west.

For reference see White-eyed Vireo.

* ***Vireo olivaceus*** (Linnaeus): Red-eyed Vireo. Common transient and summer resident, in deciduous forest and woodland. Present northeast April 21-October 7. Eggs laid first week of June to last week of July, early records probably lacking, peak probably June 1-10; single-brooded. Number of eggs about 3 (3.33, 3-4; 3). Nests placed about 7 feet high in small trees (maple, dogwood, oak). *V. o. olivaceus* (Linnaeus) occurs in Kansas.

Lawrence, L. de K. (1953), Nesting life and behavior of the red-eyed vireo. Canadian Field-Nat., 67:47-77.

Vireo philadelphicus (Cassin): Philadelphia Vireo. Uncommon transient in east, in deciduous forest and woodland; occurs as far west as Harvey and Cloud counties. Present northeast September 2-October 1.

Lewis, H. F. (1921), A nesting of the Philadelphia vireo. Auk, 38:185-202.

* ***Vireo gilvus*** (Vieillot): Warbling Vireo. Common transient and summer resident, in woodland and edge. Present northeast April 20-October 6. Eggs laid early May to mid-June, peak May 25-June 5; single-brooded. Number of eggs about 4. Nests placed high, 15-25 feet, in mature deciduous trees. *V. g. gilvus* (Vieillot) occurs in Kansas.

* ***Mniotilta varia*** (Linnaeus): Black-and-white Warbler. Common transient in state, local and uncommon summer resident in east, in deciduous forest and woodland. Present northeast April 2-

October 6. Eggs laid May and June, records only for Sedgwick, Douglas, and Leavenworth counties.

Smith, W. P. (1934), Observations of the nesting habits of the black and white warbler. Bird-Banding, 5:31-35.

* ***Protonotaria citrea*** (Boddaert): Prothonotary Warbler. Locally common transient and summer resident in east, in understory of riparian timber and swampy woodland. Present northeast April 29-September 10. Eggs laid mid-May to first week of July, peak June 1-10; single brooded. Number of eggs 4 (4.24, 3-6; 4). Nests placed 1-6 feet high in cavities in willows, elm, red haw, and occasionally "bird houses."

Walkinshaw, L. H. (1953), Life-history of the prothonotary warbler. Wilson Bull., 65:152-168.

Limnothlypis swainsonii (Audubon): Swainson Warbler. Rare transient in east, in riparian thickets. One specimen (KU 33464): east side Lake Quivira, Johnson County, May 11, 1957 (Hardy, 1957:10).

Meanley, B. (1945), Notes on Swainson's warbler in central Georgia. Auk, 62:395-401.

Helmitheros vermivorus (Gmelin): Worm-eating Warbler. Rare transient and probable summer resident in east, in shaded, swampy undergrowth of mature deciduous forest. Present northeast in May and September, and Linsdale (1928:592) reported a singing bird July 11, 1923, in Doniphan County near Missouri River.

Vermivora chrysoptera (Linnaeus): Golden-winged Warbler. Rare transient in east, in woodland. Several sight records and two specimens, both Douglas County (3 miles south Lawrence [Hall, 1921:607] and 2 miles north Baldwin [Hardy and Ford, 1957:8], first two weeks of May).

Parkes, K. C. (1951), The genetics of the golden-winged X blue-winged warbler complex. Wilson Bull., 63:5-15.

Vermivora pinus (Linnaeus): Blue-winged Warbler. Uncommon transient, possibly rare summer resident, in east, in scrubby edges of deciduous woodland and heavy second-growth. Present northeast May-June, August-October.

For reference see Golden-winged Warbler.

Vermivora peregrina (Wilson): Tennessee Warbler. Common transient in east, uncommon in west, in deciduous forest and woodland. Present northeast April 21-May 22, September 9-October 22.

Vermivora celata (Say): Orange-crowned Warbler. Common transient, in deciduous woodland, edge, and second-growth. Present

northeast April 14-May 17, September 10-October 19. Overwinters rarely (Johnston, 1959*a*): January 4, 1959, Lawrence, Douglas County. *V. c. celata* (Say) occurs throughout Kansas, *V. c. orestera* Oberholser in west.

Vermivora ruficapilla (Wilson): Nashville Warbler. Common transient, in deciduous woodland, edge, and second-growth. Present northeast April 30-May 17, August 11-October 27. *V. r. ruficapilla* (Wilson) occurs in Kansas.

Lawrence, L. de K. (1948), Comparative study of the nesting behavior of chestnut-sided and Nashville warblers. Auk, 65:204-219.

Vermivora virginiae (Baird): Virginia Warbler. Uncommon transient in west, in riparian thickets and scrubland. Two specimens: 8 miles south Richfield, Morton County, May 4, 10, 1950 (Graber and Graber, 1954:164).

* ***Parula americana*** (Linnaeus): Parula Warbler. Uncommon to common transient and local summer resident in east, in deciduous forest, heavy woodland, and especially riverbottom timber. Present in south by April 1, in northeast April 13-October 7. Eggs laid mid-May to mid-June. Number of eggs around 4. Nests placed in debris in root tangles along stream banks and presumably in pendant arboreal lichens.

Graber, R., and Graber, J. (1951), Nesting of the parula warbler in Michigan. Wilson Bull., 63:75-83.

* ***Dendroica petechia*** (Linnaeus): Yellow Warbler. Common transient and summer resident, in woodland and riparian groves. Present northeast April 21-October 1. Eggs laid mid-May to mid-June, peak May 20-31; single-brooded. Number of eggs 4-5 (4.12, 3-5; 8). Nests placed about 6 feet high in forks of shrubs and small trees, frequently willows. *D. p. aestiva* (Gmelin) breeds almost throughout Kansas, *D. p. sonorana* Brewster in southwest; *D. p. rubiginosa* (Pallas) transient throughout.

Schrantz, F. G. (1943), Nest life of the eastern yellow warbler. Auk, 60: 367-387.

Dendroica magnolia (Wilson): Magnolia Warbler. Uncommon transient in forest and woodland. Present northeast May 11-20, September 21-October 5.

Nice, M. M. (1926), A nesting study of magnolia warblers. Wilson Bull., 38:185-199.

Dendroica tigrina (Gmelin): Cape May Warbler. Rare transient in east, in woodland and edge. One specimen (KU 31644): Lawrence, Douglas County, December 6, 1954 (late, non-representative date).

MacArthur, R. H. (1958), Population ecology of some warblers of northeastern coniferous forest. Ecology, 39:599-619.

Dendroica caerulescens (Gmelin): Black-throated Blue Warbler. Rare transient, in woodland and edge. Present (chiefly west) in May, September, October; most frequent in autumnal migration. *D. c. caerulescens* (Gmelin) occurs in Kansas.

Nice, M. M. (1930), A study of nesting of black-throated blue warblers. Auk, 47:338-345.

Dendroica coronata (Linnaeus): Myrtle Warbler. Common transient, rare winter resident, found in woodland and edge. Present northeast March 30-May 25, and September 3-November 1; specimens and sight records for all winter months. *D. c. coronata* (Linnaeus) and *D. c. hooveri* McGregor occurs in Kansas.

For reference see Cape May Warbler.

Dendroica auduboni (Townsend): Audubon Warbler. Common transient, but rare in east, in woodland and edge. Hybrids between this species and Myrtle Warbler reported common in west (Tordoff, 1956:343). Recorded west October 1-November 8. *D. c. auduboni* (Townsend) occurs in Kansas.

Dendroica nigrescens (Townsend): Black-throated Gray Warbler. Transient in extreme western Kansas. Sight records and four specimens, 8 miles south Richfield, Morton County, May 8 to 13, 1950 (Graber and Graber, 1954:165).

Dendroica townsendi (Townsend): Townsend Warbler. Transient in extreme western Kansas. Sight records and two specimens (one, KU 31206, September 5, 1952) from 8 miles south Richfield, Morton County, May 3-20, September 3-5.

Dendroica virens (Gmelin): Black-throated Green Warbler. Uncommon transient in east, rare in west, in woodland. Present northeast May 7-18, August 27-October 14. *D. v. virens* (Gmelin) occurs in Kansas.

Pitelka, F. A. (1940), Breeding behavior of the black-throated green warbler. Wilson Bull., 52:3-18.

Dendroica cerulea (Wilson): Cerulean Warbler. Uncommon transient, probably rare summer resident in extreme east, in mature deciduous forest. Present northeast April 30-September 13. No nesting record.

Dendroica fusca (Müller): Blackburnian Warbler. Uncommon transient in east, rare in west, in woodland. Present northeast April 29-May 22, and early September.

Lawrence, L. de K. (1953), Notes on the nesting behavior of the blackburnian warbler. Wilson Bull., 65:135-144.

[***Dendroica dominica*** (Linnaeus): Yellow-throated Warbler. Sight records from east; species probably breeds southeast, but no

specimen from Kansas. To be sought among large streamside sycamores.]

Dendroica pensylvanica (Linnaeus): Chestnut-sided Warbler. Uncommon but regular transient, less numerous in west, in woodland. Present northeast May 1-22, September 7-October 9. Specimens only from Douglas, Shawnee, and Morton counties.

For reference see Nashville Warbler.

Dendroica castanea (Wilson): Bay-breasted Warbler. Uncommon transient in woodland. Present east May 2-26, September 25-October 6.

Mendall, H. L. (1937), Nesting of the bay-breasted warbler. Auk, 54: 429-439.

Dendroica striata (Forster): Blackpoll Warbler. Common transient in east, uncommon to rare in west, in woodland. Present in south by April 26, in northeast April 28-May 25, no records for autumn.

[***Dendroica pinus*** (Wilson): Pine Warbler. Probably rare transient in east, but no specimen from Kansas.]

* ***Dendroica discolor*** (Vieillot): Prairie Warbler. Common, local summer resident and transient in Wyandotte and Johnson counties, in edge habitats, chiefly that between oak-hickory and old field second-growth. Present April 29-August 22. Eggs laid in June (Hedges, 1953:30). Nests situated low to ground, but sites not yet found in Kansas. *D. d. discolor* (Vieillot) occurs in Kansas.

Nolan, V. (1958), Anticipatory food-bringing in the prairie warbler. Auk, 75:263-278.

Dendroica palmarum (Gmelin): Palm Warbler. Uncommon transient, chiefly if not solely in east (to Cloud County), in scrubland and open woodland edge. Present northeast April 27-May 9, September 23-October 23. *D. p. palmarum* (Gmelin) occurs in Kansas.

Walkinshaw, L. H., and Wolf, M. A. (1957), Distribution of the palm warbler and its status in Michigan. Wilson Bull., 69:338-351.

Seiurus aurocapillus (Linnaeus): Ovenbird. Uncommon transient, presumed local summer resident northeast (Brumwell, 1951: 226), in woodland understory. Present northeast April 29-June 21, August 29-October 6, and possibly through summer. *S. a. aurocapillus* (Linnaeus) occurs throughout Kansas, *S. a. cinereus* A. H. Miller in west.

Stenger, J., and Fall, J. B. (1959), The utilized territory of the ovenbird. Wilson Bull., 71:125-140.

Seiurus noveboracensis (Gmelin): Northern Waterthrush. Uncommon to common transient, in undergrowth of wet or swampy

woodland. Present northeast April 28-June 27, August 23-October 1.

Eaton, S. W. (1957), A life history study of *Seiurus noveboracensis* (with notes on *Seiurus aurocapillus* and the species of *Seiurus* compared). Sci. Stud. St. Bonaventure Univ., 19:7-36.

* ***Seiurus motacilla*** (Vieillot): Louisiana Waterthrush. Common to uncommon transient and summer resident in east, uncommon transient in west, near streams in woodland understory. Present northeast April 21-August. Breeding records from Douglas, Miami, Linn, and Crawford counties, where eggs laid May and June.

Eaton, S. W. (1958), A life history study of the Louisiana waterthrush. Wilson Bull., 70:211-236.

* ***Oporornis formosus*** (Wilson): Kentucky Warbler. Common transient and summer resident in east, in deciduous forest and woodland. Present northeast April 21-September 13. Nesting records for Riley, Doniphan, Douglas, and Linn counties, where eggs laid May and June. Nests placed on or near ground surface, usually among small bushes.

Oporornis agilis (Wilson): Connecticut Warbler. Rare transient. One specimen (KU 32662): 1 mile west Topeka, Shawnee County, September 23, 1955. Sight records at Topeka, Shawnee County on May 1, 1949, and May 5, 1960 (L. B. Carson, pers. comm.); trapped and banded April 27, 1960, sight records May 14, 1955, May 17, 1959, and May 28, 1957, all at Pittsburg, Crawford County (T. M. Sperry, pers. comm.).

Oporornis philadelphia (Wilson): Mourning Warbler. Locally common transient in east, sporadically to Sedgwick and Cloud counties. Present northeast May 13-30, August 23-October 1.

Cox, G. W. (1960), A life history of the mourning warbler. Wilson Bull., 72:5-28.

Oporornis tolmiei (Townsend): MacGillivray Warbler. Transient, common in extreme west, rare in east. Specimens from Hamilton, Morton, and Marshall counties. *O. t. tolmiei* (Townsend) occurs in Kansas.

* ***Geothlypis trichas*** (Linnaeus): Yellowthroat. Common transient in state, common summer resident, less numerous in west. Present northeast April 21-October 3. Eggs laid May and June, peak early June. Number of eggs around 5. Nests placed in cattails and sedges, 1 to 2½ feet high. *G. t. brachydactylus* (Swainson) breeds in eastern Kansas, *G. t. occidentalis* Brewster in west.

Stewart, R. E. (1953), A life-history study of the yellow-throat. Wilson Bull., 65:99-115.

* ***Icteria virens*** (Linnaeus): Yellow-breasted Chat. Common transient and summer resident, in willow thickets and rank second-growth. Present northeast April 29-October 1. Eggs laid late May to mid-July, peak July 1-10; single-brooded. Number of eggs 4 (3.90, 3-5; 10). Nests situated about 3 feet high in thistle, coral berry, currant, grape, dogwood, rose, willow. *I. v. virens* (Linnaeus) breeds in eastern Kansas, *I. v. auricollis* (Deppe) in west.

Petrides, G. A. (1938), A life history study of the yellow-breasted chat. Wilson Bull., 50:184-189.

* ***Wilsonia citrina*** (Boddaert): Hooded Warbler. Rare summer resident in east, formerly common, in wet, open woodland. Present northeast late April, May, June; not known how frequent on autumnal migration. One nest: 4 eggs, clutch completed about May 23, 1959, 2 miles south Welda, Anderson County; young fledged June 22, one banded (Wm. R. Brecheisen, MS); nest 6 feet high in a small bur oak, in woodlot of bur oak, walnut, red cedar, wild plum thickets. Four specimens, 3 from Leavenworth, Leavenworth County, May 9, 1871, one from Topeka, Shawnee County, May 17, 1871 (Mus. Comp. Zool., Harvard College).

Odum, E. P. (1931), Notes on the nesting habits of the hooded warbler. Wilson Bull., 43:316-317.

Wilsonia pusilla (Wilson): Wilson Warbler. Common transient, in woodland, parkland, most non-prairie habitats. Present northeast May 2-23, August 23-October 1. *W. p. pusilla* (Wilson) occurs in eastern Kansas, *W. p. pileolata* (Pallas) in west.

Harrison, J. J. (1951), Notes and observations on the Wilson's warbler. Wilson Bull., 63:143-148.

Wilsonia canadensis (Linnaeus): Canada Warbler. Uncommon transient in east, in woodland. Present northeast May 15-25, August 23-October 1.

* ***Setophaga ruticilla*** (Linnaeus): American Redstart. Common transient and local summer resident in east, transient in west, in forest, woodland, open woodland and edge. Present northeast April 30-October 7. Nesting records from Fort Leavenworth, Leavenworth County (Brumwell, 1951:227) and Republic County, 5 eggs completed May 27, 1940. *S. r. ruticilla* (Linnaeus) breeds in Kansas, *S. r. tricolora* (Müller) a transient.

Sturm, L. (1945), A study of the nesting activities of the American redstart. Auk, 62:189-206.

* ***Passer domesticus*** (Linnaeus): House Sparrow. Common resident, chiefly about towns and farmsteads; present since about 1886 in eastern Kansas. Eggs laid late March to early October (egg season ends mainly in July), peak April 1-10; double-brooded.

Number of eggs 4 (3.87, 3-7; 8). Nests situated 10 to 50 feet high in crevices and holes in buildings and trees, or freely situated in forks and crotches of good-sized trees. *P. d. domesticus* (Linnaeus) occurs in Kansas.

Summers-Smith, D. (1955), Display of the house sparrow *Passer domesticus*. Ibis, 97:296-305.

* ***Dolichonyx oryzivorus*** (Linnaeus): Bobolink. Uncommon but regular transient, rare and local summer resident, in grassy meadows. Nesting records from Jamestown State Lake, Cloud County, young out of nest June 25, 1940, and Big Salt Marsh, Stafford County, 5 fresh eggs June 18, 1956 (Tordoff, 1957:13-14).

* ***Sturnella magna*** (Linnaeus): Eastern Meadowlark. Common transient and summer resident in east, nesting colonies locally west to Jewell, Stafford, and Barber counties, in grassland; frequents more lowland and wetter fields than does next species. Present northeast chiefly early February-early December, but recorded in all months. Eggs laid late April to mid-July, peak May 10-20; probably double-brooded. Number of eggs 4-5. Nests placed on ground, in grass, chiefly of unmown pasture. *S. m. magna* (Linnaeus) occurs in northeastern Kansas, *S. m. argutula* Bangs in southeast.

Lanyon, W. E. (1957), The comparative biology of the meadowlarks (*Sturnella*) in Wisconsin. Publ. Nuttall Ornith. Club, 1:1-67.

* ***Sturnella neglecta*** (Audubon): Western Meadowlark. Common resident in west, local in east, common transient throughout, in grassland; frequents more upland and dryer fields than does preceding species. Eggs laid mid-April to mid-August, peak May 10-20; double-brooded. Number of eggs 4 (4.30, 3-6; 10). Nests placed on ground, in grass. *S. n. neglecta* (Audubon) occurs in Kansas.

For reference see Eastern Meadowlark.

* ***Xanthocephalus xanthocephalus*** (Bonaparte): Yellow-headed Blackbird. Common transient in west, uncommon in east, around marsh and pasture; uncommon, local summer resident, chiefly west, in marshes. Present northeast March 31-October 18, vagrant in winter. Eggs laid May and June. Number of eggs around 5. Nests placed in sedges and cattails, a few inches to 2 feet above surface of water.

Fautin, R. W. (1941), Incubation studies of the yellow-headed blackbird. Wilson Bull., 53:107-122.

* ***Agelaius phoeniceus*** (Linnaeus): Redwinged Blackbird. Common transient and summer resident, numbers much reduced in

winter, around marshes, wet pasture, scrubby parkland. Eggs laid early May to late July, peak May 20-31; single-brooded. Number of eggs 4 (3.73, 3-5; 70). Nests placed in cattails, willow, *Rumex*, yellow clover, honeysuckle, exotic conifers, elm saplings, ash, many others; redwings have recently begun nesting in wide variety of sites, following increasing scarcity of satisfactory marshes. Important host in north-central sector of Brown-headed Cowbird. *A. p. phoeniceus* (Linnaeus) breeds in most of Kansas, *A. p. fortis* Ridgway probably in west and transient; *A. p. arctolegus* Oberholser transient.

Nero, R. W. (1956), A behavior study of the red-winged blackbird. Wilson Bull., 68:5-37, 129-150.

* ***Icterus spurius*** (Linnaeus): Orchard Oriole. Common transient and summer resident, in parkland, woodland edge, second-growth. Present northeast April 30-September 15. Eggs laid mid-May to early July, peak June 1-10; single-brooded. Number of eggs 4 (4.00, 3-6; 13). Nests hung 12 (6-28) feet high in great variety of trees.

Icterus cucullatus Swainson: Hooded Oriole. Vagrant. One record (Lincoln, 1940:420): foot of specimen, 16 miles southwest Garden City, Finney County, about August 5, 1939; bird had been banded at Los Angeles, California, January 22, 1939. *I. c. californicus* (Lesson), on geographic grounds, occurs in Kansas.

* ***Icterus galbula*** (Linnaeus): Baltimore Oriole. Common transient and summer resident, most numerous in east in woodland and bottomland timber. Present northeast April 24-September 29, vagrant in winter. Eggs laid mid-May to late June, peak June 1-10; single-brooded. Number of eggs 4-5. Nests hung about 18 (9-60) feet high in great variety of large trees. Hybridizes in west with following species.

* ***Icterus bullockii*** (Swainson): Bullock Oriole. Common transient and summer resident in west, rare in east, in woodland edge and bottomland timber. Hybridizes with preceding species in west. *I. b. bullockii* (Swainson) occurs in Kansas.

Euphagus carolinus (Müller): Rusty Blackbird. Common transient, local winter resident, around barnyards, pastures, and marshes. Present northeast September 23-April 17. *E. c. carolinus* (Müller) occurs in Kansas.

Euphagus cyanocephalus (Wagler): Brewer Blackbird. Common transient and local winter resident in west, uncommon in east,

around barnyards, pastures and marshes. Present northeast September 20-April 23.

Williams, L. (1952), Breeding behavior of the Brewer blackbird. Condor, 54:3-47.

* ***Quiscalus quiscula*** (Linnaeus): Common Grackle. Common transient and summer resident, local winter resident, in towns, farmland, parkland; forages on open ground. Present northeast chiefly mid-March to mid-November, records for all winter months. Eggs laid mid-April to late June, peak May 1-10; few individuals lay two clutches. Number of eggs 4 (4.33, 3-5; 8). Nests placed 8-35 feet high in trees. *Q. q. versicolor* Vieillot occurs in Kansas.

Peterson, A., and Young, H. (1950), A nesting study of the bronzed grackle. Auk, 67:466-476.

* ***Molothrus ater*** (Boddaert): Brown-headed Cowbird. Common transient and summer resident, local winter resident, in wide variety of habitats, but chiefly in woodland and streamside edge, and second-growth. Most abundant northeast mid-March-early November. Eggs laid late April to late June, peak May 10-20; probably "double-brooded." Bird species most frequently parasitized in Kansas are Cardinal, Redwinged Blackbird, Eastern Phoebe, Bell Vireo, Lark Sparrow, Dickcissel, Wood Thrush, Indigo Bunting, Red-eyed Vireo, Rufous-sided Towhee, Say Phoebe, Acadian Flycatcher, Carolina Wren, Brown Thrasher, Mockingbird, Catbird, White-eyed Vireo, Yellow-throated Vireo, Yellow Warbler, Yellow-breasted Chat, Yellowthroat, Orchard Oriole, Blue Grosbeak, and Field Sparrow. Eighty-three nests of above species contained 114 cowbird eggs, or less than 1.4 eggs per parasitized nest. *M. a. ater* (Boddaert) occurs in most of Kansas, *M. a. artemisiae* Grinnell transient, possible summer resident, in west.

Friedmann, H. (1929), The cowbirds . . . Charles C. Thomas, Springfield, Illinois, xvii+421pp.

Piranga ludoviciana (Wilson): Western Tanager. Uncommon to common transient in extreme west, using open woodland and streamside vegetation. Present May-September, but only as transient (species is both notably late moving north and notably early moving south).

* ***Piranga olivacea*** (Gmelin): Scarlet Tanager. Uncommon to common transient in east, uncommon to rare summer resident northeast, in deciduous forest and bottomland timber. Present northeast April 29-September 23. Eggs laid (Doniphan, Leavenworth, Douglas, Linn, and Cloud counties) mid-May to mid-June; single-

brooded. Number of eggs about 4. Nests situated 20 to 30 feet high in mature deciduous trees.

* ***Piranga rubra*** (Linnaeus): Summer Tanager. Common transient and summer resident, in woodland and edge. Present northeast April 24-October 8. Eggs laid (Doniphan, Douglas, and Linn counties) late May to early July; single-brooded. Number of eggs 3-4. Nests situated 10-20 feet high on horizontal limbs of large trees. *P. r. rubra* (Linnaeus) occurs in Kansas.

Fitch, H. S., and Fitch, V. R. (1955), Observations on the summer tanager in northeastern Kansas. Wilson Bull., 67:45-54.

* ***Richmondena cardinalis*** (Linnaeus): Cardinal. Common resident in east, uncommon generally west, rare in southwest, in broken woodland, woodland edge, second growth, streamside timber where open. Eggs laid early April to mid-September, peaks May 1-10, June 1-10; double-brooded. Number of eggs 3 (3.31, 3-5; 25). Nests situated 1-12 feet high in great variety of shrubby plant types. Important host of Brown-headed Cowbird. *R. c. cardinalis* (Linnaeus) occurs in Kansas.

Laskey, A. R. (1944), A study of the cardinal in Tennessee. Wilson Bull., 56:27-44.

* ***Pheucticus ludovicianus*** (Linnaeus): Rose-breasted Grosbeak. Common transient, local summer resident in east, in woodland and edge, streamside timber. Present northeast April 25-October 1. Eggs laid mid-May to mid-June, peak June 1-10; single-brooded. Number of eggs about 3.

Ivor, H. R. (1944), Bird study and semi-captive birds: the rose-breasted grosbeak. Wilson Bull., 56:91-104.

* ***Pheucticus melanocephalus*** (Swainson): Black-headed Grosbeak. Common transient and summer resident in west, in woodland and edge, streamside timber. Present central sector April 26-September 18. Eggs laid (Cloud County) mid-May to early July, peak May 20-31; single-brooded. Number of eggs about 4. *P. m. melanocephalus* (Swainson) occurs in Kansas.

Weston, H. S. (1947), Breeding behavior of the black-headed grosbeak. Condor, 59:54-73.

* ***Guiraca caerulea*** (Linnaeus): Blue Grosbeak. Transient and summer resident, common westerly but rare northeast, in brushland and streamside thickets. Present northeast May 8-September 2. Eggs laid at least late May to late June; peak early June. Number of eggs about 4. Nests ordinarily placed low, in thick cover. *G. c. caerulea* (Linnaeus) occurs in eastern Kansas, *G. c. interfusa* Dwight and Griscom in west.

* ***Passerina cyanea*** (Linnaeus): Indigo Bunting. Common transient and summer resident in east, but west to Finney County in smaller numbers, in mixed-field, heavy-brushland habitats. Hybridizes with following species in west. Present northeast April 27-October 8, to October 9 in Cowley County, to October 31 in Morton County. Eggs laid mid-May to early August, peak June 10-20; double-brooded. Number of eggs 3 (3.23, 2-4; 17). Nests situated about 3 feet high (1 to 9 feet) in wide variety of low, brushy plants. Important host of Brown-headed Cowbird.

Sibley, C. G., and Short, L. L., Jr. (1959), Hybridization in the buntings (*Passerina*) of the Great Plains. Auk, 76:443-463.

* ***Passerina amoena*** (Say): Lazuli Bunting. Common transient and summer resident in extreme west, in edge habitats and streamside brush; rare in east. Hybrids between this and preceding species common in west. One breeding record: 1 egg, 8½ miles north Elkhart, Morton County, July 18, 1958 (Thompson, 1958).

* ***Passerina ciris*** (Linnaeus): Painted Bunting. Inconspicuous summer resident in southeastern third of state (Douglas to Riley to Clark counties), in edge habitats and streamside brush. Present northeast May 7-August 1. One nesting record: brood fledged summer, 1918, Lawrence, Douglas County (Tordoff, 1956:349); singing males not uncommon throughout area outlined above. *P. c. pallidior* Mearns occurs in Kansas.

Parmalee, D. F. (1959), The breeding behavior of the painted bunting in southern Oklahoma. Bird-Banding, 30:1-18.

* ***Spiza americana*** (Gmelin): Dickcissel. Common transient and summer resident, local in west, in grassland habitats. Present northeast April 21-October 11; one record in February. Eggs laid early May to late July, peak May 30-31; predominately single-brooded. Number of eggs 4 (3.88, 3-5; 9). Nests placed from 3 inches to 8 feet high, ordinarily about 1 foot, in wide variety of short or young vegetation. Important host of Brown-headed Cowbird.

Gross, A. O. (1921), The dickcissel (*Spiza americana*) of the Illinois prairies. Auk, 38:1-26, 163-184.

* ***Hesperiphona vespertina*** (Cooper): Evening Grosbeak. Rare and irregular winter visitant, in woodland and edge. Present eastern sector November 6-March 23. *H. v. vespertina* (Cooper) occurs in Kansas.

Carpodacus purpureus (Gmelin): Purple Finch. Common to uncommon transient, casual winter resident, chiefly east, in wood

land and edge. Present northeast October 3-April 22. *C. p. purpureus* (Gmelin) occurs in Kansas.

Blake, C. H. (1955), Notes on the eastern purple finch. Bird-Banding, 26:89-116.

Carpodacus mexicanus (Müller): House Finch. Common winter resident, presumed local summer resident in area south and west of Hamilton and Finney counties. Vagrant in east (Cloud County, February-March). *C. m. frontalis* (Say) occurs in Kansas.

Evenden, F. G. (1957), Observations on nesting behavior of the house finch. Condor, 59:112-117.

[*Pinicola enucleator* (Linnaeus): Pine Grosbeak. Presumed rare winter visitant in east; recent sight records, but no specimen from Kansas.]

Acanthis flammea (Linnaeus): Common Redpoll. Rare and irregular winter visitant, chiefly east, in woodland edge and second-growth scrub. Present northeast (Cloud, Riley, Douglas, Wyandotte, Johnson, Woodson, Greenwood counties) November 18-March 25. *A. f. flammea* (Linnaeus) occurs in Kansas.

* *Spinus pinus* (Wilson): Pine Siskin. Common, irregular transient and winter resident in state, rare summer resident northeast, in woodland and edge. Present in east chiefly October 19-May 29. Eggs laid (Concordia, Cloud County, Onaga and St. Mary's, Pottawatomie County) April and May. Number of eggs 3 or 4. Nests placed in exotic conifers about 10 feet high. *S. p. pinus* (Wilson) occurs in Kansas.

Weaver, R. L., and West, F. H. (1943), Notes on the breeding of the pine siskin. Auk, 60:492-504.

* *Spinus tristis* (Linnaeus): American Goldfinch. Common resident, in woodland edge, second-growth scrub, old fields. Eggs laid late June to late August, peak late July-early August; probably single-brooded. Number of eggs 3-5. Nests placed in low or young vegetation 2-8 feet high. *S. t. tristis* (Linnaeus) occurs in Kansas.

Stokes, A. W. (1950), Breeding behavior of the goldfinch. Wilson Bull., 62:107,127; Nickell, W. P. (1951), Studies of habitats, territory and nests of the eastern goldfinch. Auk, 68:447-470.

* *Loxia curvirostra* Linnaeus: Red Crossbill. Irregular winter visitant, in woodland, particularly around planted conifers. Present northeast October 3-April 15. One nesting record: 3 eggs, completed March 24, 1917, Shawnee County; successfully fledged (Hyde, 1917:166). In approximate order of decreasing frequency (Tordoff, 1956:350) *L. c. benti* Griscom, *L. c. bendirei* Ridgway,

L. c. minor (Brehm), *L. c. stricklandi* Ridgway, and *L. c. sitkensis* Grinnell occur in Kansas.

Tordoff, H. B. (1954), Social organization and behavior in a flock of captive, nonbreeding red crossbills. Condor, 56:346-358.

* ***Loxia leucoptera*** Gmelin: White-Winged Crossbill. Rare and irregular winter visitant. Two specimens from Kansas: Ellis and Douglas (KU 6605, November 4, 1899) counties. *L. l. leucoptera* Gmelin occurs in Kansas.

Chlorura chlorura (Audubon): Green-tailed Towhee. Uncommon to common transient in west, rare winter visitant in east (Shawnee and Wyandotte counties).

* ***Pipilo erythrophthalmus*** (Linnaeus): Rufous-sided Towhee. Common transient and winter resident in state, uncommon summer resident in east, in dense understory of woodland, streamside thickets, heavy scrub. Neither breeding or wintering birds conspicuous in September. Eggs laid early May to early August, peak in May; double-brooded. Number of eggs 4 (4.20, 3-7: 5). Nests placed near or on ground, in heavy cover. *P. e. erythrophthalmus* (Linnaeus) breeds in Kansas, *P. e. arcticus* (Swainson) in winter, *P. e. montanus* Swarth transient in extreme west.

Davis, J. (1957), Comparative foraging behavior of the spotted and brown towhees. Auk, 74:129-166.

* ***Calamospiza melanocorys*** Stejneger: Lark Bunting. Common transient and summer resident in west, rare transient and summer resident in east, in grassland and open scrub.

Passerculus sandwichensis (Gmelin): Savannah Sparrow. Common transient, rare winter resident, in grassland. Present northeast chiefly February 21-June 3, August 29-December 1. *P. s. savanna* (Wilson), *P. s. oblitus* Peters and Griscom, and *P. s. nevadensis* Grinnell occur in Kansas.

Hailman, J. P. (1958), Behavior notes on the Ipswich sparrow. Bird-Banding, 29:241-244.

* ***Ammodramus savannarum*** (Gmelin): Grasshopper Sparrow. Common transient and local summer resident, in grassland. Present northeast April 12-October 6 (one December 3 at Lawrence, Douglas County). Eggs laid mid-May to late June, peak perhaps May 20-31; single-brooded. Number of eggs 4-5. Nests placed on ground or low in bushes, with grass cover. *A. s. perpallidus* (Coues) occurs in Kansas.

Smith, R. L. (1959), The songs of the grasshopper sparrow. Wilson Bull., 71:141-152.

Ammodramus bairdii (Audubon): Baird Sparrow. Uncommon (and overlooked) transient, possible summer resident in west, in

grassland. Five specimens: two Lane County (April and August); three, Cowley County (April and October).

Cartwright, B. W., Shortt, T. M., and Harris, R. D. (1937), Baird's sparrow. Trans. Royal Canadian Inst., 21:153-197.

Passerherbulus caudacutus (Latham): Le Conte Sparrow. Common transient, west at least to Lane County, local winter resident (Douglas, Woodson, Cherokee counties), in grassland. Present northeast September 30-May 11.

Walkinshaw, L. H. (1937), Leconte's sparrow breeding in Michigan and South Dakota. Auk, 54:309-320.

* *Passerherbulus henslowii* (Audubon): Henslow Sparrow. Uncommon transient, west at least to Cloud County, uncommon, local summer resident (Shawnee, Douglas, Morris, and Anderson counties), in grassland. Present northeast April 14-October 15. Eggs laid in May. Number of eggs about 5. Nests placed on ground in bluestem pasture. *P. h. henslowii* (Audubon) occurs in Kansas.

Hyde, A. S. (1939), The life history Henslow's sparrow, *Passerherbulus henslowi* (Audubon). Misc. Publ. Mus. Zool. Univ. Michigan, No. 41.

Ammospiza caudacuta (Gmelin): Sharp-tailed Sparrow. Rare transient in east, at least to Cloud County, in streamside edge habitats, particularly where cover is heavy and low to ground. Occurs northeast late April and September 26-October 14. *A. c. nelsoni* (Allen) occurs in Kansas.

Woolfenden, G. E. (1956), Comparative breeding behavior of *Ammospiza caudacuta* and *A. maritima*. Univ. Kansas Publ. Mus. Nat. Hist., 10:45-75.

Pooecetes gramineus (Gmelin): Vesper Sparrow. Common transient in state, probably uncommon summer resident in northwest, in pasture and field. Present northeast March 21-May 18, September 4-November 22. *P. g. gramineus* (Gmelin) occurs in eastern Kansas, *P. g. confinis* Baird in west.

Perry, E. M., and Perry, W. A. (1918), Home life of the vesper sparrow and the hermit thrush. Auk, 35:310-321.

* *Chondestes grammacus* (Say): Lark Sparrow. Common transient and summer resident in state, rare in winter in south, in grassland. Present northeast March 29-October 16. Eggs laid mid-May to mid-July, peak June 10-20; single-brooded. Number of eggs 4 (4.00, 3-5; 14). Nests situated on ground, rarely in low bushes, in grassy and weedy cover. Important host of Brown-headed Cowbird. *C. g. grammacus* (Say) occurs in eastern Kansas, *C. g. strigatus* Swainson in west.

Aimophila ruficeps (Cassin): Rufous-crowned Sparrow. Probably rare summer resident in southwestern sector. Two records: Schwarz Canyon, Comanche County, June 7, 1936 (KU 29222);

sight record near Point Rock, Morton County, May 21, 1950 (Graber and Graber, 1954:171). *A. r. eremoeca* (Brown) occurs in Kansas.

Aimophila aestivalis (Lichtenstein): Bachman Sparrow. Vagrant. Two records: Lake Quivira, Wyandotte County, April 26, 1948 (KU 32377); sight record, Lake Quivira, Johnson County, April 24, 1949. *A. a. illinoensis* (Ridgway) occurs in Kansas

* *Aimophila cassinii* (Woodhouse): Cassin Sparrow. Common summer resident south and west of Wallace and Comanche counties, in open scrub. Nesting records only for Finney, Comanche, and Morton counties, where eggs laid May and June.

Amphispiza bilineata (Cassin): Black-throated Sparrow. One specimen (KU 31356): 4 miles north, 3 miles east of Garden City, Finney County, November 25, 1952. *A. b. opuntia* Burleigh and Lowery occurs in Kansas.

Amphispiza belli (Cassin): Sage Sparrow. Winter resident in extreme southwest, in some years common, in sagebrush. Specimens and sight records from along Cimarron River in Morton and Seward counties, November, 1956, January, 1957 (Tordoff, 1958:14). *A. b. nevadensis* (Ridgway) occurs in Kansas.

Junco aikeni Ridgway: White-winged Junco. Uncommon to common transient and winter resident in west, in edge and riparian groves. Specimens from Wallace, Ellis, Hamilton, and Morton counties.

Junco hyemalis (Linnaeus): Slate-colored Junco. Common transient and winter resident, in woodland and edge. Present northeast September 23-May 2. *J. h. hyemalis* (Linnaeus) and *J. h. cismontanus* Dwight occur in Kansas.

Junco oreganus (Townsend): Oregon Junco. Common transient and winter resident in west, uncommon in east, in woodland and edge. Present northeast September 25-April 27. *J. o. montanus* Ridgway and *J. o. mearnsi* Ridgway occur in Kansas.

Sabine, W. S. (1959), The winter society of the Oregon junco: intolerance, dominance, and the pecking order. Condor, 61:110-135.

Spizella arborea (Wilson): Tree Sparrow. Common transient and winter resident, in open woodland, second-growth and edge habitats. Present in south October 7-April 14, in northeast October 3-April 20. *S. a. arborea* (Wilson) occurs in eastern Kansas, *S. a. ochracea* Brewster, throughout state.

Sargent, T. D. (1959), Winter studies on the tree sparrow, *Spizella arborea*. Bird-Banding, 30:27-37.

* *Spizella passerina* (Bechstein): Chipping Sparrow. Common transient and summer resident in east, less numerous in west, in open woodland, second-growth, and edge habitats. Present northeast March 6-November 15. Nesting records only for Atchison, Douglas, and Cowley counties, where eggs laid in May. Number of eggs about 4. *S. p. passerina* (Bechstein) occurs in eastern Kansas, *S. p. arizonae* Coues in west.

Walkinshaw, L. H. (1944), The eastern chipping sparrow in Michigan. Wilson Bull., 56:193-205.

Spizella pallida (Swainson): Clay-colored Sparrow. Common transient in state, probably summer resident extreme northwest (Tordoff, 1956:352), in open woodland and edge habitats. Present northeast April 3-May 18, August 4-October 19.

Spizella breweri Cassin: Brewer Sparrow. Common transient in west, in open scrubland and edge. Few specimens (Tordoff, 1956:352), in April and May, Morton and Finney counties. *S. b. breweri* Cassin occurs in Kansas.

* *Spizella pusilla* (Wilson): Field Sparrow. Common transient and summer resident, uncommon winter resident, in grassland-edge habitats. Time of greatest abundance northeast February 7-November 12. Eggs laid early May-early September, peak in June?; double-brooded. Number of eggs about 4. Nests placed 6 inches to 3 feet high in small shrubs, young trees, brier tangles. *S. p. arenacea* Chadbourne occurs in most of Kansas, intergrading in east with *S. p. pusilla* (Wilson).

Walkinshaw, L. H. (1939), Nesting of the field sparrow and survival of the young. Bird-Banding, 10:107-114, 149-157.

Zonotrichia querula (Nuttall): Harris Sparrow. Common transient and winter resident in east, uncommon in west, in heavy brush adjoining open woodland and fields, other edge habitats. Present northeast October 3-May 19.

Zonotrichia leucophrys (Forster): White-crowned Sparrow. Common transient and winter resident, in woodland edge and hedgerows. Present northeast September 28-May 22. *Z. l. leucophrys* (Forster) occurs chiefly in eastern Kansas, *Z. l. gambelii* (Nuttall) chiefly in west.

Blanchard, B. (1941), The white-crowned sparrows of the Pacific seaboard. . . . Univ. California Publ. Zool., 46:1-178.

Zonotrichia albicollis (Gmelin): White-throated Sparrow. Uncommon to common transient and winter resident in east, less numerous west of central Kansas, in woodland edge and hedge-

rows. Present in south September 27-May 5, in northeast October 3-May 20.

Borror, D. J. (1948), Analysis of repeat records of banded white-throated sparrows. Ecol. Monogr., 18:411-430.

Passerella iliaca (Merrem): Fox Sparrow. Uncommon transient and winter resident in east, probably less common in west, in heavy brush and forest understory. Present northeast October 3-April 19. *P. i. iliaca* (Merrem) and *P. i. zaboria* Oberholser occur in Kansas.

Melospiza lincolnii (Audubon): Lincoln Sparrow. Common transient and uncommon winter resident, in brush near water. Present northeast September 5-May 19. *M. l. lincolnii* (Audubon) occurs throughout Kansas, *M. l. alticola* (Miller and McCabe) in extreme west.

Melospiza georgiana (Latham): Swamp Sparrow. Common transient and uncommon winter resident in east, rare west of Flint Hills, in heavy brush near water. Present northeast October 1-May 21. *M. g. georgiana* (Latham) and *M. g. ericrypta* Oberholser occur in Kansas.

Melospiza melodia (Wilson): Song Sparrow. Common transient and winter resident in state, possible summer resident in north (Hays, 1956:20); uses heavy cover near water. Present in south by September 26, in northeast September 17-May 9. Validity of presumed nesting in Republic and Cloud counties questionable, for species not seen there in summer for 23 consecutive years by Porter, and dates of capture of specimens in juvenal feather (September 28-October 9) in Republic, Cloud, and Lane counties fall within period of normal southward autumnal movement by Song Sparrows. *M. m. juddi* Bishop, *M. m. euphonia* Wetmore, and *M. m. montana* Henshaw occur in Kansas.

Nice, M. M. (1937, 1943), Studies in the life history of the song sparrow. I and II. Trans. Linnaean Soc. New York, 4:246 pp; 6:328 pp.

Rhynchophanes mccownii (Lawrence): McCown Longspur. Common to uncommon transient and winter resident in west, rare in east, in short grassland. Present October 29-March 20.

Mickey, F. W. (1943), Breeding habits of McCown's longspur. Auk, 60: 181-209.

Calcarius lapponicus (Linnaeus): Lapland Longspur. Common transient and winter resident, in grassland and fallow fields. Present November 1-April 12. *C. l. lapponicus* (Linnaeus) and *C. l. alascensis* Ridgway (less commonly) occur in Kansas.

Calcarius pictus (Swainson): Smith Longspur. Uncommon transient and local winter resident, more numerous in west, in grassland. Present October 7-April 22.

* *Calcarius ornatus* (Townsend): Chestnut-collared Longspur. Common transient and winter resident in west, uncommon in east, in short grassland. Present October 5-April 8. Formerly summer resident in west, most notably at Ft. Hays, Ellis County, where J. A. Allen took 20 specimens between May 31 and June 12, 1871.

Harris, R. D. (1944), The chestnut-collared longspur in Manitoba. Wilson Bull., 56:105-115.

Plectrophenax nivalis (Linnaeus): Snow bunting. Winter visitant at rare and irregular intervals. No specimens since 1879 from Kansas. *P. n. nivalis* (Linnaeus) occurs in Kansas.

Tinbergen, N. (1939), The behavior of the snow bunting in spring. Trans. Linnaean Soc. New York, 5:1-94.

LITERATURE CITED

American Ornithologists' Union, Check-list Committee.
1957. Check-list of North American Birds (Lord Baltimore Press, Baltimore). xiii + 691 pp.

Andrews, T. F., and Stephens, H. A.
1954. Wilson's phalarope nesting in Kansas. Bull. Kansas Ornith. Soc., 5:30.

Bent, A. C.
1919. Life histories of North American diving birds. Bull. U. S. Nat. Mus., 107:xiii + 245 pp.
1921. Life histories of North American gulls and terns. Bull. U. S. Nat. Mus., 113:x + 345 pp.
1922. Life histories of North American petrels, pelicans and their allies. Bull. U. S. Nat. Mus., 121:xii + 343 pp.
1923. Life histories of North American wild fowl. Bull. U. S. Nat. Mus., 126:ix + 250 pp.
1925. Life histories of North American wild fowl. Bull. U. S. Nat. Mus., 130:x + 376 pp.
1926. Life histories of North American marsh birds. Bull. U. S. Nat. Mus., 135:xii + 490 pp.
1927. Life histories of North American shore birds. Bull. U. S. Nat. Mus., 142:ix + 420 pp.
1929. Life histories of North American shore birds. Bull. U. S. Nat. Mus., 146:ix + 412 pp.
1932. Life histories of North American gallinaceous birds [Galliformes and Columbiformes]. Bull. U. S. Nat. Mus., 162:xi + 490 pp.
1937. Life histories of North American birds of prey [Falconiformes, in part]. Bull. U. S. Nat. Mus., 167:viii + 409 pp.
1938. Life histories of North American birds of prey [Falconiformes, in part, and Strigiformes]. Bull. U. S. Nat. Mus., 170:viii + 482 pp.

1939. Life histories of North American woodpeckers. Bull. U. S. Nat. Mus., 174:viii + 334 pp.
1940. Life histories of North American cuckoos, goatsuckers, hummingbirds and their allies. Bull. U. S. Nat. Mus., 176:viii + 506 pp.
1942. Life histories of North American flycatchers, larks, swallows, and their allies. Bull. U. S. Nat. Mus., 179:xi + 555 pp.
1946. Life histories of North American Jays, crows, and titmice. Bull. U. S. Nat. Mus., 191:xi + 495 pp.
1948. Life histories of North American nuthatches, wrens, thrashers, and their allies. Bull. U. S. Nat. Mus., 195:xi + 475 pp.
1949. Life histories of North American thrushes, kinglets, and their allies. Bull. U. S. Nat. Mus., 196:viii + 454 pp.
1950. Life histories of North American wagtails, shrikes, vireos, and their allies. Bull. U. S. Nat. Mus., 197:vii + 411 pp.
1953. Life histories of North American wood warblers. Bull. U. S. Nat. Mus., 203:xi + 734 pp.
1958. Life histories of North American blackbirds, orioles, tanagers, and allies. Bull. U. S. Nat. Mus., 211:ix + 549 pp.

BRUMWELL, M. J.
1951. An ecological survey of the Fort Leavenworth Military Reservation. Amer. Midl. Nat., 45:187-231.

EATON, S. W.
1957. Variation in Seiurus noveboracensis. Auk, 74:229-239.

FORD, N. L.
1957. Yellow-bellied flycatcher in southwestern Kansas. Bull. Kansas Ornith. Soc. 8:15.

FITCH, H. S.
1958. Home ranges, territories, and seasonal movements of vertebrates of the natural history reservation. Univ. Kansas Publ. Mus. Nat. Hist., 11:63-326.

GOSS, N. S.
1891. History of the birds of Kansas (G. W. Crane & Co., Topeka). 692 pp.

GRABER, J.
1954. Additional notes on the birds of southwestern Kansas. Wilson Bull., 66:149-151.

GRABER, R., and GRABER, J.
1951. Notes on the birds of southwestern Kansas. Trans. Kansas Acad. Sci., 54:145-174.

HALL, E. R.
1921. Golden-winged warbler in Kansas. Auk, 37:607.

HARDY, J. W.
1957. First specimen from Kansas of Swainson's warbler. Bull. Kansas Ornith. Soc., 8:10.
1958. The occurrence of the Inca dove (*Scardafella inca*) in Kansas. Bull. Kansas Ornith. Soc., 9:18-19.

HARDY, J. W., and FORD, N. L.
1957. A second specimen of the golden-winged warbler from Kansas. Bull. Kansas Ornith. Soc., 8:8.

Hays, H. E.
1956. Nesting record of the song sparrow in Kansas. Bull. Kansas Ornith. Soc., 7:20.
Hedges, H. C.
1953. The prairie warbler in eastern Kansas. Bull. Kansas Ornith. Soc., 4:30.
Hyde, A. S.
1917. Bendire's crossbill in Kansas. Oologist, 34:166.
Hubbard, F. F.
1953. Spring arrival dates of the house wren. Bull. Kansas Ornith. Soc., 4:17.
Isely, D.
1912. A list of the birds of Sedgwick County, Kansas. Auk, 29:25-44.
Johnston, R. F.
1959*a*. Hibernal distribution of the orange-crowned warbler. Bull. Kansas Ornith. Soc., 10:1.
1959*b*. Occurrence and status of the ground dove in Kansas. Bull. Kansas Ornith. Soc., 10:9.
Keith, B. A.
1940. The Arizona jay, *Aphelocoma siberii arizonae*, found in Kansas. Trans. Kansas Acad. Sci., 43:427.
Lincoln, F. C.
1940. Arizona hooded oriole in Kansas. Auk, 57:420.
Linsdale, J. M.
1926*a*. Least flycatcher in Kansas in summer. Condor, 28:175-176.
1926*b*. The magpie nesting in Kansas. Condor, 28:179-180.
1928. Birds of a limited area in eastern Kansas. Univ. Kansas Sci. Bull., 18:517-626.
Linsdale, J. M., and Hall, E. R.
1927. Notes on the birds of Douglas County, Kansas. Wilson Bull., 39:91-105.
Menke, H. W.
1894. A list of the birds of Finney County, Kansas. Univ. Kansas Sci. Bull., 3:129-135.
Miller, A. H., Friedmann, H., Griscom, L., and Moore, R. T.
1957. Distributional check-list of the birds of Mexico. Part II. Pacific Coast Avif., 35:435pp.
Miller, R. F., and Boyd, I. R.
1947. Migration records of birds in east-central Kansas. Trans. Kansas Acad. Sci., 50:62-71.
Mossman, L. O.
1952. [Photograph] *in* "Kansas Fish and Game," 9(3):7.
Snyder, L.
1919. Harris's hawk in Kansas. Auk, 36:567.
Thompson, M. C.
1958. Additional nesting records for the state of Kansas. Bull. Kansas Ornith. Soc., 9:18-19.
1960. Some dates of extreme occurrence for birds in south-central Kansas. Bull. Kansas Ornith. Soc., 11:14-15.

TORDOFF, H. B.
1956. Check-list of the birds of Kansas. Univ. Kansas Publ. Mus. Nat. Hist., 8:307-359.
1957. Nesting of the bobolink in Kansas. Bull. Kansas Ornith. Soc., 8:13-14.
TORDOFF, H. B., and YOUNG, G. P.
1951. Short-billed marsh wren breeding in Kansas. Wilson Bull., 63:44-45.
WIDMANN, O.
1907. A preliminary catalog of the birds of Missouri. Trans. Acad. Sci. St. Louis, 17:1-288.

Transmitted June 16, 1960.

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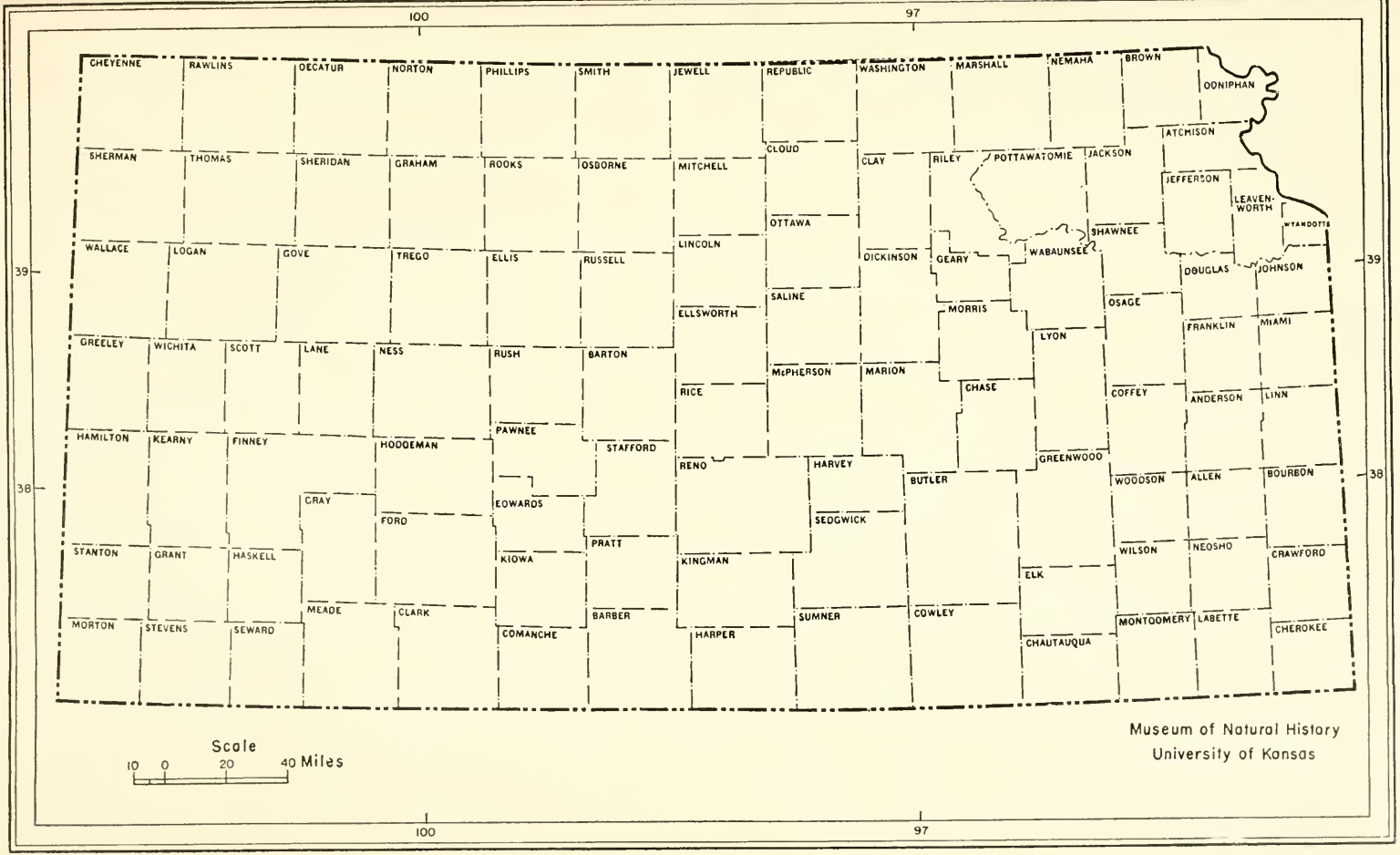

FIG. 1. Map of Kansas showing names of counties.